STALE BREAD
BAKING INDUSTRY

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FOOD RESEARCH INSTITUTE

STANFORD UNIVERSITY, CALIFORNIA

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Stale Bread: Loss as a Problem of the Baking Industry

BY

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FOREWORD

The Food Research Institute was established at Stanford University in 1921, at the suggestion of Mr. Herbert Hoover, by the joint action of Stanford University and the Carnegie Corporation of New York, for the study of problems in the production, distribution, and consumption of food. It is concentrating its efforts for the present upon problems related to wheat and wheat products, and particularly upon the economic aspects of these problems. As part of this work it is studying certain of the economic phases of the baking industry. The present paper is an outgrowth of these studies.

The authors are especially indebted to their colleague, Dr. C. L. Alsberg, for the discussion of the process by which bread grows stale, as well as for valuable suggestions for revision of the manuscript. They desire to acknowledge their indebtedness to many bakers in all parts of the country for furnishing information essential in the construction of this report; to the Committee on Economic Research in the American Bakers Association for its counsel at various stages in the investigation; and in particular to Mr. Harry D. Tipton and Mr. D. P. Chindblom for advice concerning the form of the questionnaire and for comments upon the draft report.

Up to the present the results of researches in the Food Research Institute have appeared chiefly as contributions to established scientific and business journals. A list of those already published up to February 1, 1923, appears at the end of this pamphlet. This report is the first to appear as a special publication issued directly by the Institute.

CONTENTS

	PAGE
Summary and Conclusions	7
The Problem	11
The Investigation	13
What is Stale Bread?	15
Importance of Stale Bread Loss	18
Disposition of Stale Bread	22
Factors Responsible for Stale Bread	25
The Factor of Keeping Quality	25
Adjustment of Output to Requirements	32
Returns from Dealers	36
Why Bakers Accept Returns	38
No-Returns as an Individual Policy	43
Trade Agreements or Understandings	47
Legislation against Stale Returns	49
Can the Law be Enforced?	53
The Position of the Dealer	56
Is the Elimination of Stale Loss Too Costly?	58
The Consumer's Interest	59
Appendix I. Questionnaire on Losses from Stale Bread	61
Appendix II. Extracts from Laws Prohibiting Returns of Unsold Bread	63
Appendix III. Regulations Issued by the Wisconsin Commissioner in Connection with the Law Prohibiting Bread Returns	69

STALE BREAD LOSS AS A PROBLEM OF THE BAKING INDUSTRY

Summary and Conclusions

Losses from stale bread constitute an important item of cost for large numbers of wholesale bakers, and to some extent for retail bakers as well. Large stale bread losses tend to raise the price of bread to consumers and to threaten the financial position of the baker. Moreover, since stale bread is largely used for animal feed, or even for fuel, whenever a considerable volume must be disposed of, the loss occasions a needless waste of food. Though generally smaller now than before the war, the net loss to wholesale bakers today probably averages at least 2½ or 3 per cent of their sales, and runs into several million dollars a year. Since the close of the war, stale bread losses have tended to increase except where measures for its control have been adopted.

This loss and waste is largely preventable. Individual bakers all over the country, and most bakers in certain sections, have substantially solved the problem of keeping within very narrow limits the amount of bread which they cannot sell as fresh. In so doing they have practically eliminated the waste of food, so far as they are concerned, since this bread will be used entirely for human food if the quantity is small. The attention of the industry as a whole, and of other interested parties as well, should be directed toward their experience.

Our study of this experience leads to the conclusion that, under proper conditions, stale bread losses exceeding 1 per cent of production are excessive, and that a figure of ½ of 1 per cent is an attainable standard. Losses above 1 per cent reflect objectionable trade practices, poor business management, or both.

Acceptance of returns of unsold bread from dealers is by all odds the leading factor in such losses wherever the loss is high. Where this practice prevails, the loss is almost sure to be excessive. The abandonment of the common practice of taking back unsold bread from dealers is essential to the solution of the stale bread problem. This change of policy would reduce certain dangers of food contamination as well as tend to cut down wastes. The success of a no-returns policy, however, requires careful attention to

other measures calculated to insure that bread reaches the consumer fresh.

The principal requirements are the following: Bread of a high keeping quality must be baked, so that bread a day or two old may be readily saleable as fresh. Reasonable effort must be made to keep down the time between the baking of bread and its purchase by consumers. Dealers' requirements must be gauged closely from day to day, with salesmen's orders as a basis but with adequate use of weather forecasts and other information concerning coming events that affect bread sales. Production must be adjusted carefully to requirements, both in amount and in time. Bakers must cultivate the support of dealers and their own sales force in securing this adjustment. Experience in the trade shows clearly that these measures are entirely practical.

If they can meet these requirements, individual bakers can successfully enforce a no-returns policy, even when competing bakers take back unsold bread. Competition, however, makes it difficult for concerns to adopt and enforce this policy single-handed. Local agreements among leading wholesalers not to exchange unsold bread often afford a practicable method of abolishing this objectionable practice. Such agreements are in the public interest, but they are not easily adopted, cannot always be enforced, and tend to break down.

State laws prohibiting returns of unsold bread have recently been adopted in six states. Their constitutionality is sometimes called in question, but has not yet been tested. Although not yet fully observed, they have clearly facilitated reduction in stale bread losses. These laws have the well-nigh unanimous endorsement of bakers operating under them, although not yet adequate support from retail grocers. With suitable efforts on the part of officials, and with deserved support from bakers and dealers, they can be enforced as well as most legislative regulations, and they constitute the most important single contribution to the control of stale bread loss.

Despite some opinions to the contrary, it seems clear that the abolition of the practice of exchanging bread can be accomplished without undue expense and without restricting the sales of wholesale bakers; indeed, if accompanied by other measures essential to its success, it promises to lead to increases in the consumption

of baker's bread. Retail grocers, although perhaps instinctively opposed to the withdrawal of the return privilege, have little to lose by the change if it is properly carried into effect. They stand to gain, in the long run, from the elimination of occasional dangers to cleanliness inherent in the practice of exchanging bread, and through the expansion of the market for baker's bread. If bakers take the necessary steps to insure that bread reaches the consumer fresh, the consumer's interest is emphatically in favor of the elimination of returns from dealers and in the radical reduction of stale bread losses by other means.

STALE BREAD LOSS AS A PROBLEM OF THE BAKING INDUSTRY

The Problem

Bread is one of the most perishable of foodstuffs. This is not true in the physical sense. Bread does not quickly lose its nutritive value or become unfit for food. But it is true in a commercial sense. Consumers will invariably choose fresh bread in preference to bread that has lost its freshness, and frequently refuse absolutely to purchase any but clearly fresh bread. Retail dealers therefore find stale bread, often bread only a day old or even less, practically unsalable. Failure of the baker to maintain a nice adjustment of output to daily requirements results in quantities of unsold bread which cannot be marketed on a par with the freshly baked product. This bread can be sold only at a considerable reduction in price, for human food; or at a still greater reduction, for animal feed or other uses. This unsold or "stale" bread easily becomes a leading source of financial loss to the baking industry, running into millions of dollars a year.

The problem of unsold bread is especially important to the wholesale baker. He produces on a large scale, and distributes his bread over a wide area, by tens or scores of deliverymen, to scores or hundreds of retail merchants. The time that elapses between baking and eating tends to increase with the size and complexity of the baker's distributive system. The same cause increases the opportunities for maladjustment of output to consumption, and the difficulties of correcting this maladjustment promptly. To a large extent the same difficulties confront the large baker who distributes his bread directly to consumers through house-to-house delivery.

Large scale production of bread is growing. This tendency increases the importance of the stale loss problem in two ways. Directly it enlarges the field within which considerable losses from stale bread are to be expected. On the other hand, a general reduction in the loss from this source, like other economies in production or distribution, will tend to permit the baker to sell on a narrower margin and thus to extend the market for his product into homes where household baking is practiced on grounds of economy.

The problem is important not only to the baking industry. So far as losses from unsold bread are inevitable and general, they must be accepted as part of the necessary costs of getting bread into the consumers' hands, and prices will normally be high enough to cover this cost as well as other costs of production and distribution. Economies here, in a field so competitive as the baking industry, will ordinarily be reflected, at least in part, in lower prices to consumers. Although this item alone may not be large enough for its reduction to have a visible and traceable effect on the price per loaf, which is influenced by many other factors as well, the possible saving on a year's purchases from such reductions in cost would be quite appreciable for great groups of the population whose expenditure on bread is a considerable element in their costs of living.

From another point of view also the general community has an interest in the reduction of stale bread losses. A vast amount of unsold bread, probably the bulk of it, is not used for human consumption but is turned into animal feed. This is exceedingly wasteful. It is rarely good national economy to feed wheat to animals, except such parts of the crop as are unfit for milling. It is all the more extravagant to feed to animals the highly finished products of excellent wheat, which has gone through the expensive processes of transportation, manufacture, and commerce. The use of stale bread as fuel is obviously more wasteful still.

This problem is not insoluble. Individual bakers in all parts of the country, and most bakers in certain sections, have succeeded in reducing their stale bread losses to very small proportions. Because of progress made in this direction, the volume of stale bread is probably considerably smaller than it was before the Great War. There is good reason to believe that by intelligent effort on the part of bakers, with reasonable coöperation from retail dealers, and with the support of consumers, the loss from this source can be reduced much further, though it never can be eliminated entirely. With the object of contributing to the solution of the problem, the Food Research Institute has undertaken to investigate the factors responsible for stale bread loss and the methods by which this loss may be curtailed.

THE INVESTIGATION

Upon stale bread losses, as upon most other problems of the baking industry, there is no considerable collection of information readily available for study. The pertinent facts must be gathered largely from the bakers themselves. This is not a simple matter. Research of this character is so new to the baking industry that many bakers do not yet appreciate its possibilities of usefulness, and do not find time to coöperate in such a study. Comparatively few bakers keep records which, however adequate for business purposes, are sufficiently complete to be very helpful in a study of this kind. Others, who have reasons for distrusting "investigations" of any sort, are reluctant to share, even in confidence with an independent organization like the Food Research Institute, the records they do possess that may bear upon a problem of the industry. Hence it has proved no easy task to assemble an adequate body of facts concerning the stale bread problem and to interpret these facts with due recognition of their limitations.

Certain preliminary steps were taken. The experience of a few wholesale bakers was studied in some detail. A number of well-informed persons were interviewed in a few leading cities. The files of the trade journals were searched for articles and news items relating to stale bread losses. The records and publications of the United States Food Administration, and the Commercial Economy Board of the Council of National Defense, were examined because of the experience of these bodies with the problem during the war. Finally, an effort was made to distinguish clearly the various elements in the problem of losses from stale bread, in order that requests for detailed information might be so made as to throw the most light upon it with a minimum of inconvenience to the bakers approached.

On the basis of this preliminary study, two questionnaires were drafted. These were modified with the advice of the Committee on Economic Research appointed by the American Bakers' Association. One questionnaire, which was sent only to bakers presumed to possess a considerable body of records, was quite detailed. The other, which is reprinted in an appendix to this report, was much briefer. Both questionnaires were designed to bring out the experience of the baker in respect to the importance of losses, and the measures by which the losses could be kept down or reduced. In particular, bakers were asked their views

upon and their experience under trade agreements and state laws directed against the return of stale bread from retail dealers.

Preceded by a letter concerning the Food Research Institute and the proposed investigation (which was also published in various trade journals),[1] these questionnaires were sent in July 1922 to about 150 wholesale baking companies in all parts of the country, selected more or less at random but including most of the leading concerns. Follow-up letters were mailed in August. In September a further request for additional replies accompanied a brief preliminary report based upon the returns received up to September 13. This preliminary report was published generally in the trade press and in some newspapers.[2]

The briefer questionnaire, sent to 125 companies, yielded 54 returns. To the longer questionnaire, sent to 30 companies, 7 valuable replies were received. In all 61 returns were secured, from companies operating 111 plants distributed over 26 states. In the light of the general experience with questionnaires, these returns represent a very cordial response by the bakers approached, and genuine interest on the part of the bakers was expressed in a number of letters accompanying their returns.

These replies contributed the principal material upon which this report is based. Although secured from only a small proportion of the thousands of wholesale bakers in the United States, they furnish probably a larger body of data on this problem than has been assembled in this country heretofore. The indications are that the facts submitted are, for the most part, reliable as far as they go, if not in all respects representative of the wholesale baking trade.

Additional information was obtained through the circulation of the preliminary report and its publication in the trade journals, in response to a request for comment upon its conclusions. Recent discussions by groups of bakers in New York and Baltimore, at meetings called to consider the problem in these cities, have yielded further facts.[3] We have examined the state laws prohibit-

[1] E. g., *Baking Technology,* July 15, 1922, p. 184; *Bakers' Helper,* July 15, 1922, p. 176; *Bakers' Review,* August 1922, p. 42.

[2] *Baking Technology,* Sept. 15, 1922, p. 261; *Northwestern Miller,* Sept. 27, 1922, p. 1407; *Bakers' Weekly,* Sept. 30, 1922, p. 39; *Bakers' Review,* October 1922, p. 68; *Western Baker,* October 1922, p. 23; *Bakers' Helper,* Oct. 15, 1922, p. 817; *Baltimore Evening Sun,* Oct. 27, 1922.

[3] See *Bakers' Weekly,* Sept. 9, 1922, p. 66, and Oct. 14, 1922, p. 86; *Northwestern Miller,* Oct. 11, 1922, p. 180, and Oct. 25, 1922, p. 403.

ing the return of stale bread from dealers, and have endeavored, with moderate success, to learn from bakers and public officials in these states how these laws have operated. Several newspaper publishers have responded to inquiries concerning their experience with the return of "stale" newspapers, a practice somewhat analogous to the return of stale bread. Finally, several persons intimately familiar with the baking industry have read and criticised a draft of this report.

The information obtained through these various channels, though incomplete at many points, is reasonably consistent, and admits of a fairly simple interpretation concerning the most significant aspects of the problem. While it is impossible to say the last word on such a subject, we are satisfied that the main outlines of this report would be little modified if we had been able to study a much larger collection of data.

WHAT IS STALE BREAD?

Before discussing the factors responsible for stale bread losses, it is desirable to get some notion of what stale bread actually is. The term is not precise; furthermore, its commercial meaning is not the same as its scientific meaning.

Chemists do not yet clearly understand the process by which bread grows stale. It is frequently assumed that the process is chiefly one of drying, or losing moisture. This view is not well-founded. While, of course, bread begins to dry out from the moment it is placed in the oven, the moisture content of a loaf one or two days old is, under ordinary conditions, not much less than that of the same loaf recently removed from the oven. This is especially true of wrapped bread. It is therefore improbable that, in the early stages of the development of staleness, the loss of moisture is the main factor. In the later stages the moisture content becomes less and less, but these later stages are not of much significance commercially, since loaves become unsaleable as fresh bread before the moisture content has materially declined.

More important are two other changes in the character of the loaf. The crust changes from a brittle, hard condition to a soft, pliable one, and the crumb acquires a certain toughness which is not present in the fresh condition.

The most probable hypothesis at present concerning the process underlying the development of staleness in bread is that

recently advanced by J. Katz and modified by Wo. Ostwald.[4] These authors assume that much of the moisture contained in bread is held by the starch which has been gelatinized in the baking. That starch pastes change on standing has long been known. There is a settling out of a part of the starch and a sweating out from the paste of a certain amount of moisture. These changes do not take place at higher temperatures, or at any rate take place at higher temperatures very slowly. At lower temperatures, especially below 50° C. (122° Fahrenheit), the changes take place more rapidly. Ostwald assumes that exactly the same changes take place in the gelatinized starch found in the bread. As the loaf comes out of the oven, the starch jelly distributed through the bread contains as much moisture as it is capable of holding. As the bread cools and stands, the starch gives up some of this moisture, which is absorbed by the other constituents of the loaf, especially by the coagulated gluten of the crumb. The effect upon the crust is to change it from a brittle material that crunches between the teeth to a soft and pliable one. The effect upon the gluten of the crumb is to give it firmness and toughness, properties which the gluten of fresh bread does not possess. It has long been known that if one heats a starch paste which on standing has undergone the changes above described, it will return again to the state in which it was when freshly prepared. Katz and Ostwald assume that this accounts for the well known fact that when stale (but not dry) bread is heated, it is freshened up again.[5] As the physical chemist would say: The process of growing stale is reversible.

It seems therefore that the "staling" of bread is a process of readjustment in certain of the bread's physical-chemical properties, due to the changes of temperature which the loaf undergoes in passing from the baking oven to normal atmospheric temperatures. In becoming adjusted to these lower temperatures the loaf undergoes changes, the superficial aspects of which are indicated in the preceding paragraph. While these changes begin immediately, they require more or less time for completion. At first

[4] J. R. Katz: Die Ursachen des Altbackenwerden des Brotes vom physikalisch-chemischen Standpunkt betrachtet. *Zeitschrift für Elektrochemie,* Vol. 19, p. 202 (1913). Wo. Ostwald: Beiträge zur Kolloidchemie des Brotes. *Zeitschrift für Kolloidchemie,* Vol. 25, p. 26 (1919).

[5] Economical housewives know how to restore moisture as well as to overcome the other undesirable features of staleness.

scarcely noticeable, they become distinctly so after some 24 to 48 hours, or more—the interval depending upon the original composition of the bread itself and upon outside conditions.

Commercially speaking, any bread is stale which consumers will not readily accept as fresh. There are degrees of staleness in this sense, but most consumers recognize a considerable difference in palatability between bread a few hours after baking and the same bread a day or two old. The difference as perceived is chiefly in moisture, in flavor, and in toughness of crust and crumb. Since several hours usually elapse between the purchase and the consumption of a loaf, the customer's desire is to purchase bread in as fresh condition as possible; and she regards the dealer or the baker as having cheated her if a loaf, for which she paid the regular price, proves on cutting to have the characteristics of staleness as she understands it.

Although less palatable than fresh bread, moderately stale bread is not less nourishing. Probably most of the stale bread condemned to non-human use, where it is not mouldy, is fully as nutritious as the bread consumed. Indeed, some persons find fresh bread agrees with them less well than bread some considerable time after it leaves the oven. If consumers were generally less "finicky" in this respect, and were willing to purchase moderate quantities of day-old bread at a slight reduction in price, the stale loss problem might easily vanish. But consumers are always less concerned with nutritive qualities than with appearance and palatability. During the war the British Ministry of Food required that no bread should be sold within 12 hours after baking. This had its intended effect, as a war measure to reduce bread consumption without reducing the food value of the bread consumed, but neither bakers nor consumers would consent to have the regulation continued in times of peace. Without such restrictions, bakers are always at pains to increase the consumption of baker's bread, rather than to see it reduced; and few methods are as successful in this direction as getting bread to consumers that will be universally regarded as fresh.

Doubtless the insistence of consumers on fresh bread results in their obtaining a given amount of nourishment at a higher cost. On the other hand, since even fresh bread is inexpensive as compared with many other foods which would in practice be substituted for it, this preference probably does not increase the con-

sumers' total expenditure on food. In times of peace, at any rate, the baking trade wisely recognizes this insistence as a fixed condition for the sale of bread, and must seek ways of reducing the amount of stale bread rather than to find a market for bread that is below a fairly high standard of freshness.

IMPORTANCE OF STALE BREAD LOSS

It is impossible to state at all accurately the total quantity of bread handled by American bakers as stale, or the net financial loss entailed by the disposition of bread as stale.

Before the Great War the losses often ran extremely high. Even among bakeries generally recognized as efficient, stale bread losses of 6 to 10 per cent of production were fairly common, and exceptional cases of much higher losses, running for brief periods as high as 25 per cent of the bread baked, admittedly occurred. Under these circumstances large quantities of stale but wholesome bread were fed to the baker's fires to bake new loaves. In November 1917, the United States Food Administration estimated that the loss from the return of stale bread amounted to "upwards of 600,000 barrels" of flour a year.[6]

The Commercial Economy Board of the Council of National Defence called attention to this source of waste of flour, other materials, and labor, and strongly recommended, as a measure of war economy, that the practice of returning unsold bread to bakers be abolished. The Food Administration, with the cordial support of representative bakers, prohibited the practice, and supplemented the regulation by publicity campaigns designed to enlist the aid of bakers, dealers, and consumers in reducing the waste of bread. Although the prohibition was not universally enforced, it led to a great reduction in the amount of stale bread. Many bakers who had hitherto been accustomed to much higher losses, found them running under 1 per cent of production. It is possible that in the country as a whole, after the regulation became effective, the stale bread loss did not exceed 1½ or 2 per cent of production.

After the close of the war, with the removal of this prohibition, the loss from stale bread has on the whole increased considerably. Answering our question as to changes since 1919 in the item of stale bread loss, 19 bakers reported an increase, 7 re-

[6] *U. S. Food Administration Release No. 450,* November 11, 1917.

ported a decrease and 7 reported no change, while other answers were not entirely clear. The reasons for this increase are chiefly the return, in many sections, to the practice of accepting stale bread returns from dealers, partly the relaxation of special efforts to save food materials, and partly the revival of intense competition, especially in 1920 and 1921, when bakers felt the influence of the general business reaction and of enforced economies on the part of consumers. The tendency to increase is still felt. Some bakers have become alarmed lest the "return to normalcy" should involve a return to the extremely high stale bread losses of the pre-war years, which all bakers recognize to be quite abnormal from a purely business standpoint.

On the whole, however, the losses today are considerably smaller than before the war. Some bakers have succeeded in bettering even their good war record in this respect. The net improvement since 1917 is due partly to careful attention by many bakers to factors discussed somewhat fully in this paper, but chiefly to the fact that many bakers persisted in refusing to take bread out of the dealers' hands even after the federal restriction was removed. This was done as a matter of individual business policy, or by coöperative understandings in certain localities, or with the aid of state laws directed against the practice.

In spite of these efforts by individual bakers and by groups in many sections of the country, there is no question that the loss remains large, needlessly large, today. Out of 55 bakers answering our question whether or not stale bread constitutes an important source of loss, 29 say that it is important, while 26 (one of whom reports a stale bread loss of 5 per cent of output!) report that it is unimportant. The accompanying table shows the distribution of the answers, classified according to percentages of stale bread to production, and of net loss to sales, during the first six months of 1922.

Questionnaire Returns on Percentage of Stale Bread Loss

Percentage of stale bread loss	Number of bakers reporting percentages falling within the groups indicated	
	In terms of pounds produced	In terms of sales
None or negligible	10	7
Appreciable, but not over ½ per cent	10	7
Over ½ " " " 1 " "	10	7
" 1 " " " 2 " "	6	7
" 2 " " " 3 " "	7	4
" 3 " " " 4 " "	4	4
" 4 " " " 5 " "	4	----
" 5 " " " 6 " "	4	1
Answers omitted or unusable	6	24
Total	61	61

Of the bakers answering the question, half reported stale bread losses exceeding 1½ per cent of production, and 3 showed figures of 6 per cent.

We believe that the loss is generally greater than our returns would indicate. We have reasons to think that our returns came to a less extent from bakeries having excessive stale bread losses than from bakeries more efficiently operated than the average. Our reports fall mainly into three groups: first, those from concerns who have substantially solved their stale bread problem, and whose stale bread losses are therefore very moderate,—1 per cent of production or less. This group includes over half the reports received, a higher proportion than we believe to be typical. Second, an intermediate group whose losses were reported at from 1½ per cent to 3½ per cent of production. This group included about one-quarter of those answering, a proportion which seems to us abnormally low. Finally, there is a still smaller group whose losses are clearly excessive, 4, 5, or 6 per cent of production. None reported a stale bread loss in excess of 6 per cent of production, though we have reason to think that many firms experience losses higher than this. Although no convincing figures can be presented, we are disposed to believe that the net stale loss, for the country as a whole, would amount to at least 2½ or 3 per cent of the sale value of the bread baked by wholesalers and large

retail distributers, and to an even higher percentage of the poundage of bread produced. The loss to bakers, which is largely passed on to consumers, almost certainly exceeds $5,000,000 and may amount to as much as $10,000,000 a year.

The importance of stale bread loss varies greatly in different bakeries in a single city, and at various times. Returns to our questionnaire indicate a very low average of stale bread on the Pacific coast, and a relatively high percentage in the northeastern states. No baker in the Rocky Mountain or Pacific states reported losses in excess of 2 per cent of production value for the first six months of 1922, while over half the reports received from the North Atlantic and New England states indicated losses in excess of this figure.

Our replies are not sufficiently numerous to permit many generalizations upon these sectional differences. It is clear, however, that there is a direct relation between the volume of such losses and the extent to which the practice of accepting returns from dealers is prevalent. Without exception, stale bread losses were heaviest in those sections where this practice was most common. Of this more will be said below.

Even in the same city there are often striking differences in the stale losses of competing bakers. For instance, in one city in the Central West, Baker X reported a stale loss of only one-tenth of one per cent in the first six months of 1922 while Baker Y, in the same city, reported a loss of 5 per cent. In another city two competing concerns reported losses of one-half of one per cent and 3 per cent respectively. In each of these cases the baker reporting the smaller loss did *not* take back unsold bread from retailers, while his competitor did.

The returns from our questionnaire indicate that there is some tendency for bakers to experience heavier losses in small loaves than in large, and in summer than in other seasons, although the volume of evidence is small. A more pronounced tendency is for losses to be higher in unwrapped bread than in wrapped bread, to be explained by the effectiveness of proper wrapping in retarding the process by which bread grows stale. Some bakers report higher losses in hearth breads, rye and graham bread, and rolls as compared with standard white bread, although most of these products keep longer than ordinary white loaves. Here the principal explanation lies in the fact that these products are turned

out in smaller quantities, and the demand for them is more variable and less easily predictable; hence the adjustment of output to requirements is more difficult. It is significant that some bakers, who concentrate their efforts largely or wholly upon the production of white loaves of pan bread, experience little difficulty with stale bread loss.

DISPOSITION OF STALE BREAD

The method of disposing of bread not saleable as fresh has an important bearing both on the baker's financial loss and on the loss to the community. The principal methods may be classified as follows: (1) use as bread for human consumption in spite of some degree of staleness; (2) use in other food products for human consumption; (3) use for animal feed.

The opportunities for disposing of stale bread in the first two ways are limited. If the amount of stale bread is small, it can be absorbed through these outlets and still figure as human food without much, if any, loss in food value. If the quantity is large, on the other hand, the surplus, usually a considerable surplus, must be otherwise disposed of, for animal feed or in extreme cases for fuel. The crux of the problem, from the national standpoint, is therefore to reduce the amount of stale bread to quantities that can be readily converted to human consumption. The baker too is interested especially in such reduction, since usually he gets less return from bread diverted to animal feed; but he has a further interest in reducing the loss he must take on stale bread for human food as compared with fresh bread.

There are several ways in which bread unsaleable as fresh may reach consumers as bread. In the first place, the regular retail dealer may sell a small quantity at a reduction of a cent or two per loaf. This outlet is unimportant. Consumers who prefer day-old bread, even at this reduction in price, are not numerous; bakers cannot afford to sell stale bread through their regular dealers at such a price reduction as to "spoil" their market for fresh bread; and there is risk that, if the practice were encouraged, dealers would work off old bread as if it were newly delivered fresh, to the injury of the baker's trade. A small quantity of bread may be handled by dealers in this way. But if bread is really saleable as fresh, even if it is a day or more old, there is no reason for

a price differential; and if it is below this standard, it must generally be treated as a different commodity.

A very common method is for the bakery to maintain a separate store or stores, at or near the bakery, or in a poorer section of the city, at which it can sell "cripples", day-old bread, and even older bread at a much reduced price, without entailing appreciable additional costs. Or the bakery may use an existing store, suitably located, as an outlet for this surplus. This is a common way of disposing of unsold bread remaining in the bakery or in the drivers' wagons at the end of the day, if it is not fresh enough to deliver to consumers next morning or to ship out of town by express the same evening.

Another very common practice is to donate unsaleable bread to charitable institutions or to the bakery employees. Some bakers consider it good policy, especially if they have small quantities, to dispose of the entire surplus in this fashion without attempting to recoup any part of the cost. In some cases a small price may be charged.

A good deal of stale bread that is not consumed as bread is converted into other food products, inside the bakery or out of it. Small retail bakers usually find that they can dispose of their leftovers without much loss and often to real advantage. Stale bread, dried in the oven and reduced to crumbs, can be used in making brown bread, plum pudding, certain sorts of rye bread and graham bread, as well as in various sorts of fillings for tarts and pastries and in the baking of certain kinds of cakes. To a more limited extent wholesale bakers producing a variety of products can use some of their stale bread in the same ways.

There is also, in certain parts of the country, a considerable market for bread crumbs. This is true of Philadelphia, for instance, where one of the bakeries makes a considerable point of selling bread crumbs to the household trade. Some twelve years ago one of the baking trade journals reported an attempt to place on the New York market a proof box which was said to "refresh" stale bread and make it marketable; but it turned out that the sales of the box were slow, partly for the reason that stale bread ground into crumbs was always in demand by the hundreds of New York bars and oyster houses.[1] The extent of this demand is not large. It varies considerably in different parts of the country, and

[1] *Bakers Helper*, January 1911, p. 90.

the product is not valuable enough to bear the costs of transportation and distribution to a distant market.

Stale bread which cannot be disposed of in these ways is usually sold, frequently after being dried and ground at the bakery, to be used as feed for hogs, poultry, and other small animals. The market for this feed is not highly elastic, and only a fraction of the cost of producing the bread can be obtained from such sales. Some bakers, especially when oats are high in price, find it advantageous to use certain quantities in feeding their delivery horses. This practice, however, tends to diminish in importance with the increasing use of gas and electric delivery trucks. In general, stale bread is an economical feed for animals only at a very low price per pound.

In these various ways the great bulk of stale bread is disposed of. Where these outlets will not absorb the volume of unsold bread, some may be destroyed, or used as fuel in the bakery which amounts to nearly the same thing. None of the bakers reporting to us acknowledged resort to this method of disposition. It is not characteristic of the industry today, but it undoubtedly occurs, chiefly where the amount of stale bread is very large. The waste involved in this practice is too apparent to require special comment.

For obvious reasons, bakers can afford to keep only scanty records of disposition of stale bread, although we believe that most bakers who experience considerable loss on this score could well afford to keep much more adequate records on this point until they had stopped the leak. It is practically impossible to get, even from well-managed bakeries, satisfactory information regarding the financial returns from different methods of disposition. Such information as we have been able to gather points clearly to the conclusion that as the proportion of stale bread increases, larger and larger amounts must be disposed of in ways that yield less and less financial return and that involve the diversion of the product to less and less economical uses. We consider it significant that figures from one large bakery reporting a steady increase in the volume of stale bread from 1918 to 1922 indicate a steady and marked decrease in the amount realized per pound, while figures from another bakery reporting a steady decrease in stales since 1918 indicate a steady increase in the amount realized per pound. The few other data obtained on this point, while less clear-cut, are

consistent with this conclusion. Thus a decrease in the amount of stale bread brings a much more than proportionate decrease in the financial loss as well as in the wastage of food products.

FACTORS RESPONSIBLE FOR STALE BREAD

Three factors are chiefly responsible for the presence of bread that must be handled as stale: (1) a keeping quality too low for the requirements of delivery and sale; (2) poor adjustment of production to sales requirements, resulting in leaving unsold bread in the bakery, in the drivers' wagons, or on the retailers' hands; and (3) acceptance of returns from dealers which cannot be sold as fresh.

These three factors are closely related. If bread is of such a quality that it keep its commercial freshness for 36 hours or more, the bread left unsold in the bakery or on the drivers' wagons at the end of the day can usually be shipped out of town by express the same evening, or sent out on the delivery routes early next morning. If it does not keep so well, any surplus in the bakery or on the drivers' wagons must be disposed of as stale, and there is difficulty in refusing to accept returns from the stores. Again, if there were precise adjustment of production to requirements from day to day, there would be no surplus in the dealers' hands and none in the bakery or on the drivers' wagons. The closer this adjustment is made, the less is the tendency to push bread into the dealers' hands, and the less is the seeming necessity for taking back unsold bread. A decision not to take back stale bread necessitates much more careful attention to the keeping quality of the product and to adjustment of production to requirements.

Since, however, these three factors involve somewhat different problems and call for rather different action on the part of the baker, they can best be discussed separately.

THE FACTOR OF KEEPING QUALITY.

Whatever the policy respecting returns of bread from dealers, whatever the adjustment of production to requirements, it is essential, if stale losses are to be kept down, that bread should keep long enough to give an adequate margin from the time of baking to the time consumers make their purchases, better still, to the time when the bread is actually consumed. Three distinct problems are involved: how to keep down the time between baking

and sale; how to protect the loaf, between baking and sale, from forces making for rapid loss of freshness; how to bake a loaf that retains its freshness for a considerable time.

If a policy of no returns is adopted, these matters become of even greater importance. Indeed, the failure to solve one or more of these problems leads many bakers to think it impossible to adhere to a policy of refusing to take back bread from dealers. As these problems are solved, not only will this difficulty be removed but the difficulties in adjusting production to requirements will be much reduced, for a less exact adjustment will serve all purposes.

The local retail baker can most easily keep down the time between the production and sale of his products. He times his baking so that his consumers can get bread hot. This ability to sell bread almost direct from the oven gives him one great advantage over the wholesale baker. Here lies the principal reason why stale bread is not more of a problem to the neighborhood baker. On the other hand, this very ability to get bread quickly into the consumer's hands frequently makes the local baker careless about producing a bread of good keeping quality, and when he neglects this his customers are likely in time to find his bread inferior to wholesaler's bread produced by concerns that of necessity have concentrated upon attaining good keeping quality.

For the wholesale baker, and to some extent for the large baker delivering from house to house, the time between production and sale is necessarily much longer, and it tends to increase with the area over which the bread is delivered. These bakers may resort to a variety of measures to keep this time to a minimum. Wholesalers frequently deliver bread to retail dealers twice a day or even oftener. They time their bakings so that as little time as possible elapses between baking and the departure of delivery wagons or trucks. This is the fundamental reason why night baking is the almost universal practice in the United States. With the same object, wholesale bakers have recently developed methods of artificially cooling bread, so that it may be ready for wrapping, and hence for delivery, within a much shorter time. Some enterprising bakers have made studies of their retail custom to learn when the daily peak of buying occurs in each district, and have rearranged their delivery routes and schedules so as to reach each outlet shortly before the buying reaches its maximum.

Within reason, all these measures are sound business. They are useful elements in a solution of the stale bread problem. They do not, however, go to the root of the matter. It is true, in general, that the large baker cannot reduce the time between baking and retail sale below certain limits except at greatly added cost. Bread cooling equipment is not cheap. Research into buying practices is not inexpensive. Making frequent deliveries, and increasing the speed of delivery, usually entail additional expense for both labor and equipment. Up to a certain point, the baker finds that the reduction in his overhead from increased volume of business offsets these additional costs. Beyond such a point, however, the effort of wholesale bakers to reach the ultimate consumer with bread very soon after baking is so costly that it is questionable whether it is sound business policy. Considerable waste is occasioned by competitive efforts of bakers to reach consumers with "hot" bread. Much of this, moreover, is directly traceable to the fact that the bread baked is not of a sufficiently high keeping quality.

The problem of protecting bread, during the interval between production and sale, from forces making for rapid loss of freshness, was very serious ten or fifteen years ago, but is now pretty well solved through resort to wrapping bread in the bakery, usually in waxed paper. The neighborhood baker seldom wraps his bread, except as it is sold. He does not need to do more. But within the past ten years the practice of wrapping has grown greatly in favor with wholesale bakers and large retail distributers, until today the bulk of pan bread (as distinct from hearth breads) produced by these bakers is wrapped.

Boards of health favor bread wrapping on grounds of sanitation, but probably an even weightier consideration with bakers is that bread properly wrapped retains its freshness longer without injury to its quality in other respects. Experiments have shown that wrapped bread loses its moisture more slowly, and that apparently the other changes involved in the process of growing stale take place less rapidly in wrapped bread than in unwrapped. It is significant that of 28 bakers who answered clearly our question whether stale losses tend to be larger in wrapped or in unwrapped bread, 20 reported the loss greater in unwrapped bread, 5 reported no difference, and only 3 reported the loss to be greater in wrapped bread. It is true that wrapped bread may be-

come mouldy or acid, especially in warm, humid weather, and be as unsaleable as bread that has never been wrapped, if it has not been cooled properly before wrapping, or if it is contaminated while cooling or is wrapped in unsuitable paper. Such factors probably explain the instances in which losses were reported higher in wrapped bread. It is safe to say, however, that the wide extension of the practice of bread wrapping, together with improvements in wrappers and in knowledge of the conditions under which wrapping should be done, has been a factor tending to reduce considerably the amount of stale bread in recent years.

While bread wrapping may retard the process of growing stale, it cannot prevent it. There is great difference in the keeping qualities of different breads which are wrapped in the same paper under identical conditions. The simplest way, often the only safe way, of insuring that consumers get fresh bread is to bake a loaf of excellent keeping quality, that is, one in which the process of growing stale is slow to begin and progresses slowly.

One of the questions on our questionnaire was: "For how many hours after baking (i. e., after the bread comes from the oven) can you treat your standard loaves as fresh enough to be accepted without question by the trade?" The 54 replies to this question were distributed as follows:

8–12 hours	8
8–20 "	1
14–18 "	10
20–36 "	24
48 "	8
Over 48 "	3

Thus 11 bakers reported 48 hours or over, and only 9 acknowledged a lower limit of 8 hours. The majority of the bakers reported that the bread was clearly fresh at the end of 20 hours or more, but few reported a commercial freshness lasting beyond 36 hours.

Unfortunately the answers to this question seem unreliable as a measure of keeping quality, even for the bakers concerned. The answers were based mainly on general impressions rather than on records or specific investigations. Moreover, the tendency of bakers to emphasize the good qualities of their bread in reporting to outsiders may have caused them to overstate the keeping

limits. Certainly there were several instances in which a baker reported a high stale bread loss, while at the same time he stated that his bread kept commercially fresh for 20 or more hours after baking. In these cases we are disposed to believe that the goodness of the keeping quality was exaggerated.

It is probably safe to say that, in general, bread which is not readily saleable as fresh after more than 12 hours from the time it comes from the oven is likely to involve a considerable loss from stale bread; while it should be possible to handle bread that really keeps its freshness 48 or more hours after baking in such a way as to have a very small stale bread loss. Within these two periods much depends upon the system of distribution. If only one delivery a day is the rule, if the retailers are far from the bakery, if the delivery routes are long, if the bread stands several hours in the bakery before starting on its journey, quite a little bread that keeps commercially fresh no more than 24 hours is likely to be virtually unsaleable before it is offered to consumers. On the other hand, this bread may be quite fresh enough from a selling standpoint if it is got out from the bakery promptly, if the routes are short, and if deliveries are made twice a day or oftener.

High keeping quality is especially necessary for bakers who ship considerable distances from the bakery. This practice has increased rapidly in recent years. Bakers in Massachusetts cities ship bread into all of the New England states. Bakers in strategic locations in Colorado ship south into Arizona and New Mexico and north into Idaho and Wyoming. Bakers in cities like Portland, Maine, and San Francisco, California, ship far back into the country towns tributary to these centers. The growth of this practice was stimulated during the war by the failure of express rates to rise in proportion to the increase in bread prices. The decline in bread prices automatically reduced this advantage, but the American Bakers Association has lately succeeded in persuading the Interstate Commerce Commission to prevent proposed increases in express rates on cake that would have tended further to restrict the area over which this product could be marketed from a central bakery, and similar efforts are being made to prevent increases in express rates on bread.[8] Although the comparatively low standard of bread baked in many small towns is a factor

[8] *Baking Technology*, Nov. 15, 1922; Interstate Commerce Commission, *Investigation and Suspension Docket No. 1601*, decided Nov. 13, 1922.

making possible this extension of the market area for large bakers, an essential condition for its success is that the bread thus shipped should keep better and longer than the bread baked locally.

One such bakery in a far northeastern city reported that its bread is accepted without question by the trade for 3 or 4 days after it comes from the oven. The baker put his faith in his product to a severe test by shipping in mid-July two freshly baked loaves to the Food Research Institute, six days distant by parcel post. Both loaves arrived in very fair condition. The better one showed its age only by two or three small specks of mould on the crust, and was fresh enough to be on a par with loaves a day or two old from several San Francisco and Palo Alto bakeries. This bakery reported a stale loss of less than ½ of one per cent of production in the first six months of 1922.

The obstacles to improvements in keeping quality are chiefly three: (1) lack of knowledge of the necessary procedure; (2) considerations of expense; and (3) the inertia of the baker, arising from a failure to appreciate the importance of keeping quality as a means of building business and reducing stale losses.

At bottom this is essentially a technical problem,—of materials, proportions, fermentation, and so on. Practical bakers know well that loaves made in different ways have different keeping qualities. Thus loaves made simply from flour, water, salt, and yeast, especially if the fermentation has been carried out rapidly, are believed to grow stale faster than loaves made with milk, shortening, and other additions, especially if the fermentation has been conducted more slowly. A number of baking companies have learned to understand the process sufficiently to produce loaves which keep much longer than most baker's bread. Apparently, however, there have been no careful and adequate investigations which make it possible to offer a scientific explanation for differences in keeping quality observed in loaves made by different formulæ and by different bakeshop practices. Such investigations are urgently needed.

The production of bread of high keeping quality will frequently entail additional cost, especially when it requires the use of materials such as milk and shortening, in quantities that would not otherwise be used. However, the use of some additions tends to increase the number of loaves obtained per barrel, and hence not to increase greatly the cost per loaf. Moreover, in some in-

stances consumers recognize the higher quality of such bread and willingly pay a higher price for it, which is inherently justified by the higher food value. Where this is not feasible, considerations of cost may prevent bakers from modifying their baking formulæ and process so as to improve the keeping quality. We doubt whether this is at present an important obstacle. Certainly it would be much less of an obstacle if, through private research or the work of the American Institute of Baking, standard and economical methods of improving keeping quality can be worked out. The probabilities are that experience would show that reductions in stale bread losses would much more than offset the extra cost entailed.

The failure of the baker to realize the far-reaching importance of keeping quality is primarily responsible for the lack of knowledge of the technical problem. In our judgment, there is hardly another single point on which a baker may well lay more stress. It not only helps greatly to solve the stale bread problem directly; it makes it possible for a baker alone to enforce a policy of no returns from dealers; it adds, as few other things will, to the market for his product, both in extending the area through which bread can be delivered and in extending the market through more and more households. As bakers generally become alive to the advantages from improvements in the keeping quality of their product, many of the obstacles to the solution of the stale bread problem will be removed. More bakers should follow the practice, now quite exceptional, of maintaining careful records of the keeping quality of their products.

The keeping quality of the loaf is of such importance, both to the baker and to the consumer, that it is surprising that this feature has not been given direct consideration in drafting "score cards" for bread.[9] Doubtless some relations exist between the keeping quality and certain characteristics of the "ideal loaf", as scored by the American Institute of Baking and other investigators, but none of these characteristics is clearly a reliable index of this quality. Even before a scientific basis for the analysis of keeping quality can be developed, this point should be given considerable weight among the features of a standard loaf. We believe that high keeping quality will prove, in the long run, one of the most important factors in putting bakers' bread generally on a par with the best home-baked bread.

[9] See discussion in *Baking Technology*, January and February, 1922.

It should also be remarked that the bakery employees have an interest in improvements in the keeping quality of bakery products. The abandonment of night shifts in the bakery, which are now almost universal, is practicable only for those bakers who have learned to bake bread that will keep satisfactorily. The work of the deliveryman is reduced, and his tasks are simplified, if the bread delivered to a dealer can be treated as entirely sold instead of being left virtually on consignment.

ADJUSTMENT OF OUTPUT TO REQUIREMENTS

The day to day adjustment of output to variations in demand is by no means a simple matter for the wholesale baker or the large retail distributer. Bakers' bread is not bought by consumers in unvarying quantities from one day to another. Indeed, there are considerable variations according to the days of the week, the seasons, the weather, the occurrence of holidays, the state of employment, and other factors.

These fluctuations in demand are sometimes quite unpredictable; some of them have a more or less regular behavior. Wednesdays, Thursdays, and Fridays are commonly days of low purchases, while Saturdays regularly, and Mondays frequently, are days of high demand. Thus the average Saturday business of a representative eastern bakery in the third quarter of 1921 was 50 per cent greater than the average for Friday during the same period; the average Monday business was 40 per cent above the Friday average. This sort of regularity, as well as the occurrence of holidays and special events, can be safely counted upon and provided against. Likewise where, after pay days, flour purchases are increased and the volume of home baking is temporarily enlarged, this fact can be taken into account by the bakery salesmen in making up their orders. To some extent the same is true of seasonal or temporary shifts in the urban population, due to evening trips out of town, week-end excursions to seaside resorts, or vacations spent at some distance from home.

Frequently, however, the problem of forecasting consumers' demands for the next 24 hours is quite baffling. Sudden weather changes, for instance, often completely upset the sales forecast. Sharp, crisp weather, especially if accompanied by a flurry of snow, tends to increase bread sales; while warm, humid, "sticky" weather seems to retard sales. For the bakery just mentioned,

the daily figures for sales over a thirteen weeks period showed that the several Fridays varied from each other as much as 15 per cent and the Mondays as much as 18 per cent in sales volume. This was a well-managed bakery which had substantially solved its stale loss problem. For less efficiently managed plants the daily and weekly variations in sales constitute a very difficult problem. Sudden changes in employment disturb the relation between home baking and buying baker's bread, and may even alter the actual bread consumption. Price reductions by chain stores, advertising drives by competitors, the bringing out of rival brands, price wars in any form, cause a temporary falling off in the sales of some baker's product by the retail stores, and hence increase the quantity of unsold bread. Retail bakers, too, are affected by these disturbances sufficiently to suffer losses on stale bread.

Among the firms replying to our questionnaire, those most successful in keeping down their stale bread loss emphasized as essential their policy of watching carefully their salesmen's orders, and the adjustment of output to dealers' requirements. More than half believed they had mastered this art, and usually their figures for stale bread loss bore out this opinion. More than a third, however, indicated that they experienced difficulty in securing a satisfactory adjustment. The proportion in the industry at large is probably considerably higher than among those bakers who reported to the Food Research Institute.

The standard practice in modern large bakeries is to produce to order, as in most manufacturing lines where manufacture for stock is impracticable. It is rarely possible to produce to the order of the ultimate consumer, although an important London (England) concern which sells from house to house does virtually this. Nor is it safe to expect retail dealers, unaided, to place final orders one day for the next day's delivery. As a class they are less able than the baker's employees to gauge the next day's requirements for a particular product such as bread, especially when any disturbing factors are at work. Consequently the make-up of the order for the bakeshop rests primarily with the sales force,—the deliverymen or salesmen, and the sales manager.

The usual practice is to require the driver-salesmen to turn in their orders the day before the day of delivery, often 24 hours or even longer in advance, at least early enough to permit the last few doughs mixed to be increased or decreased sufficiently to

bring the total production for the coming day into accord with the expected sales. These orders are then "recapped", or combined into a single list of items and quantities. In most cases the drivers' orders are accepted without change, and the sum of these orders serves as the basis for bakeshop operations.

Here lies a considerable opportunity for excessive orders. Salesmen are commonly paid partly or wholly on a commission basis. Hence it is to their interest to sell as much bread as possible and never to have less bread than the dealers will absorb. To be on the safe side they tend to over-order. As one baker puts it: "The trouble is that the salesmen want to take the whole bakery on the wagon." The remedy for this is obvious. The sales manager, the superintendent of the service department, or another responsible employee, should supervise carefully the orders of the individual salesmen. In particular he should keep an eye upon the quantity of unsold bread which they bring back to the bakery each day. By cutting the orders of those salesmen who bring back excessive quantities and giving somewhat more to those who have little or no returns, he can frequently increase the volume of actual sales while decreasing the amount of stale bread. Although the driver-salesmen necessarily play an important part in the success of large bakers, it is a dangerous practice to entrust them with a responsibility which they are unable to bear unaided and unchecked.

Moreover, while salesmen can make allowances for certain factors better than anyone else, the factor of weather changes can best be judged at the bakery itself as late as possible before the order is sent to the bakeshop. At present few bakers use the weather service. There is room for considerable progress in the use of advance weather forecasts in this connection. By a proper study of the influence of the weather, the sales manager may develop a considerable degree of skill in the adjustment of orders on this account alone. Similarly the influence of other disturbing factors can be noted from the time they make their appearance, their significance can be gauged with the aid of the salesmen, and measures can be taken promptly to adjust orders accordingly.

Furthermore, it is advantageous to have an opportunity for making late modifications in the orders. Some bakers arrange to have their deliverymen telephone in such modifications in the middle of their morning delivery. Others find it sufficient to have

the changes reported after the first of two daily deliveries is made. Some bakers encourage the dealers to order very cautiously, and in case additional bread is required, to call at the bakery for it or to have it sent around by special wagon or truck late in the day. If regular provision is made for such modifications, it permits the making of more conservative advance orders and facilitates the correction of underestimates in the forecast of requirements.

There is also need of attention from the sales manager's superior. The quantity and percentage of bread that must be handled as stale is an important index of sales efficiency. It is a figure that should come regularly under the eye of the manager. Unless the sales manager is under pressure to keep down the loss from stale bread, he may tend, like the driver-salesmen themselves, to order a maximum amount of bread, or to adopt policies in pushing sales that entail high returns from dealers. Often the resulting loss on stale bread will outweigh considerably the gains from enlargement of sales by these methods. The sales manager should be brought to master the art of adjusting production to requirements and to enlist the effective coöperation of his force to this end. A few words of commendation for successful efforts in this direction week by week will go far toward raising the standard of performance permanently.

One baker who, by attention to the keeping quality of his product and with the aid of a law prohibiting the exchange of unsold bread, has solved his stale loss problem, writes of his policy as follows:

> When a salesman overestimates his requirements during the week and is forced to bring back to the plant a number of loaves, which rarely ever runs over 100 counts, this bread is immediately packed in a carton—his name is marked thereon and he takes the same bread out the next day, deducting the amount when placing his order.
>
> Knowing that every loaf he brings back must be carried out by him the next day, he is naturally careful in placing his order and exerts every energy to sell the bread he has ordered. A further incentive is the fact that he works on a commission basis, which fact also makes him take care of his bread and keep it in good condition so that it will please his customers, for a loss of volume on his route hurts his pocketbook as well as ours.

With the best practicable adjustment of orders to prospective demand there may yet be a surplus resulting from overproduction by the bakeshop, or a deficiency arising from underproduction, as

compared with orders. This is essentially a production problem rather than a sales problem. In well-organized bakeshops it should never be serious. It can be guarded against by carefully systematizing the clerical work of "recapping" the drivers' orders, by making sure that late cuts and additions are systematically handled so as to bring the total production into line with total orders, and by accuracy in weighing materials and doughs. Some very successful bakeries make this "recapping" of orders the central feature in the organization of the day's work, and attribute no small part of their success in reducing stale loss to their systematic control of production.

RETURNS FROM DEALERS

The results of our questionnaire indicate that the acceptance of returns of unsold bread from retailers is by all odds the principal factor in stale loss, wherever the loss is considerable. The percentages of stale bread to production reported for the first six months of 1922 by bakers responding to our questionnaire are retabulated below to bring out this point.

*Questionnaire Answers Classified to Show the Distribution of Percentages of Stale Bread to Production**

Percentage of stale bread to production	Bakers not accepting returns**	Bakers accepting returns
None or negligible	10	0
Appreciable, but not over ½ per cent	9	0
Over ½ " " " 1 " "	9	1
" 1 " " " 2 " "	4	1
" 2 " " " 3 " "	3	4
" 3 " " " 4 " "	1	3
" 4 " " " 5 " "	0	4
" 5 " " " 6 " "	0	3
	36	16

* Three bakers who reported stale bread losses are not included here because they did not state their policy respecting returns. Six bakers who stated their policy respecting returns did not give percentages of stale bread losses.

** Four of the bakers who are classified as not accepting returns, answered as follows: "not as a regular thing—will not allow a dealer to put out hard or mouldy bread" (loss 0.5 per cent); "few—an occasional loaf sold would mean a detriment to sales" (loss 1½ per cent); "exceptional cases" (loss 3 per cent); "only damaged bread" (loss 0.25 per cent).

Out of 16 bakers who accept returns, only 2 show a stale loss of 2 per cent of production or less, while out of 36 bakers who do not accept returns, only 8 show a loss exceeding 1 per cent of production, and only 4 of these a loss exceeding 2 per cent of production. Taking the median figure (the middle of the group arranged in order of size) as a fair average, it appears that bakers not accepting returns have a stale bread loss averaging ½ of one per cent of production, while bakers who do accept returns have a loss averaging 4 or 5 per cent of production.

These figures may not be representative of the entire wholesale baking industry. In particular we doubt whether the proportion of wholesale bakers accepting returns from dealers is anything like as small as the proportion in our answers would indicate, namely, 20 to 38. With this reservation, however, all the information we can gather is consistent with the general tenor of the figures given in the preceding paragraph. We feel justified in concluding that if a policy of no returns is adopted, bakers can set a maximum of ½ of one per cent of production as an attainable standard for their stale bread loss. If the amount of stale bread is no larger than this, the financial loss will be very small and the waste of food inappreciable.

This does not mean that by merely abolishing the practice of accepting returns, bakers could at once largely eliminate stale bread. On the contrary, other measures, already described, must accompany a policy of no returns if it is to succeed. It does indicate, however, that bakers cannot expect to solve their stale bread problem so long as they accept returns, even if they adopt other desirable policies.

Experience shows, moreover, that a half-way policy is not feasible. Of course a baker may, like other wholesalers of merchandise, replace damaged loaves which should never have left the bakery or a particular batch of mouldy bread, while adhering to a policy of no returns. Beyond this he usually cannot go without making a practice of taking back leftovers generally. One representative baker puts the matter very well:

> We do *not* take back stale bread from the stores, but we think it would be a good thing to take back a *limited amount* of stale, if all the bakers could be persuaded to use proper judgment in the matter. However, it seems that if any is taken back then too much will be taken back.
>
> In our judgment it is better to take out a few loaves of stale than to permit them to be sold. A stale return of 1% would probably be a good

proposition, the only trouble is in holding it at that percentage. It certainly isn't a good thing for the bakery business to compel a grocer to sell stale bread, which he will certainly do if it isn't taken off his hands.[10]

If all of the bakery drivers could be sufficiently educated or sufficiently controlled in the matter we would favor taking back a limited amount of stale. I do not know that all the blame should be put on the drivers because the employers themselves are also responsible. As between taking back stale bread in too great a quantity and taking back no stale bread at all, we choose the lesser evil and take back none.

If adopted, the no-returns policy calls for rigid enforcement by the baker. Otherwise the deliveryman may surreptitiously remove bread from a grocer's case, take it out to his wagon, only to bring it back again; or he may take it from one retailer and pass it off on the next as fresh bread. This "bread rolling" is sometimes a serious evil, under either policy respecting returns. It is a dishonest practice, unfair to the dealer and dangerous to the baker's reputation. It can be eliminated only by maintaining a high standard of honesty and loyalty on the part of delivery men, and by making clear to them the seriousness of the practice.

The importance of the returns policy in connection with stale bread losses calls for a careful consideration of the reasons why bakers are led to accept returns, and the conditions under which they can refuse to do so.

WHY BAKERS ACCEPT RETURNS

Fundamentally, bakers accept returns from dealers in the desire to maintain or increase their volume of sales. Each baker seeks to please (and to avoid displeasing) the bread consumers of his district, and to cultivate a favorable attitude on the part of retail dealers. Under certain circumstances these motives lead him to adopt the policy of taking unsold bread out of stores.

In the first place, bakers seek to build up and protect their good will with the consumer. Practically all wrapped breads, and some unwrapped breads, bear conspicuously a trade name, the name of the baker, or both. Designed as an advertisement of his bread, this identifying label may become a source of danger to the baker. Special satisfaction with bread bearing a certain label leads the consumer to specify this particular brand when buying or ordering. Just as surely, dissatisfaction with it leads the consumer to reject loaves bearing this label. Among the various causes of dissatisfaction with baker's bread, one of the most

10 On this point, see the discussion below, p. 44.

potent is deficiency in freshness. In one way or another, bakers have taught the consumer to expect a high degree of freshness. This applies not merely to the average of bread consumed, or to the bulk of the sales. Consumers generally expect every loaf purchased to come up to this standard, and a very few exceptions are sufficient to discredit a particular brand with the purchaser.

Consequently bakers not only seek to supply dealers with bread which will retain its freshness until it may reasonably be expected to be sold, but also to prevent them from selling any loaves that fall below a high standard of freshness. By all odds the simplest way of doing this, if not the wisest, is to insist that dealers sell only fresh bread, and to take freely off their hands any loaves that are in danger of reaching the consumer's table somewhat stale. Unless such loaves are taken out by the baker's deliveryman, the dealer is liable to work them off on his customers, more to the injury of the baker's reputation than to his own.

As we have already pointed out, this danger exists almost solely when the bread loses its freshness early and rapidly, but it is much greater when the customary interval between baking and sale to the consumer is long, and when the quantities supplied to the dealers exceed what they can dispose of within the usual limits. The problem arises usually with bread delivered one day which is unsold at the end of the day. If it has been baked the day or the night before delivery to the dealer, bread unsold on the day of delivery will usually not reach the consumer's table before the noon or evening meal of the following day, when it is at least 30 and often 48 hours old. The difficulty with a Saturday night surplus is still greater. Since comparatively few bakers at present can count upon their bread retaining its commercial freshness beyond 36 hours, the risk of dissatisfaction to the consumer is large.

Once the policy of accepting returns is in vogue, it is difficult to break away from it. Competition seems to require it. Retail dealers regard the return privilege as a right. They tend to resent vigorously any curtailment of the privilege. Most bakers recognize the evil results of the practice. If, as during the war, a regulation prohibiting the practice is enforced, they are happy. But if their competitors accept returns, they often feel helpless to take a different stand, lest retailers openly or quietly give the

preference to the competitive products. When there is a tendency to reduced sales, as during a period of unemployment, or in a bread price war, or in the face of special "drives" by chain stores or other wholesale bakers, the pressure is extremely strong to force the whole trade into accepting returns with the utmost freedom. Few bakers are strong enough to withstand this pressure, unless there is some coöperation among them or some legal regulation which they can help enforce.

It is sometimes suggested that the dealer is the one to bear the risk of loss, just as he does in the case of other perishable foods. If he orders beyond his requirements, if his sales fail to carry off his stock, in the case of fresh fruit and vegetables, for instance, he bears the risk of spoilage, and charges the consumer a price sufficiently high to cover this risk if he can. Why should he not order his bread with the same care, dispose of leftovers as stale in whatever way he can, and pass the added cost on to the consumer?

But the case with bread is different in several ways. The inevitable spoilage of bread is much less than in the case of most fruits and vegetables. Its lack of freshness is not so easily apparent, hence the dealer can work off stale bread on his customers more readily than spoiled fruit or vegetables. He can usually do so without qualms of conscience, for most stale bread is wholesome, while decayed fruit and vegetables are not. He can less readily adjust the price, for bakers usually sell to the trade with the expectation that certain prices will be asked of consumers. Moreover, the bakers and their deliverymen, in the interest of increasing sales, take an almost paternal attitude toward the grocer in respect to bakery products: they supply bread cases; they often arrange the bread in the case; they supply advertising material; they look after the conditions of sale. They often have more to say than the dealer himself concerning the amount left in his store. Consequently, the dealer naturally looks to the deliveryman to relieve him of unsold bread, as part of this policy, and regards the bread in his case as virtually there on consignment. The fact that the dealer can seldom dispose of stale bread as readily as the baker can, strengthens the case for a policy of returns. Finally, as we have said, most of the bread handled by dealers bears the name of the baker, as cannot be said of most

other quickly perishable foodstuffs; hence the baker, more than the grocer, is injured by deficiency in quality.

As we shall see,[11] much is possible through coöperation between bakers and dealers in this regard, but it is out of the question to expect dealers to bear the loss on unsold bread, as they do on unsold produce as a matter of course, unless the baker adopts measures for looking after the dealer's interest, and in particular assists him in keeping this loss down to a negligible quantity.

One difference of policy is intimately related to the volume of returns, if returns are accepted, and to the question of changing from one practice to the other. Some bakers encourage dealers to order very conservatively, at the same time giving dealers an opportunity, through additional deliveries or otherwise, to replenish their stock when it falls low before buying is over. On the other hand, many bakers encourage their deliverymen to give the dealer all he will take, even to the point of urging him to take more than he believes he can sell. The object is to see that every customer asking for this bread will get it, and to provide a surplus for sale to customers who do not specify a brand. There is also an idea that merely exposing for a sale a large amount of bread of a particular brand may impress customers in its favor. At least, it is argued, such a practice gives the bread a "chance" to sell.

Needless to say, this kind of policy cannot be followed if bread is not returnable. Dealers must be taught to order conservatively. If a policy of no-returns is adopted, other methods of pushing sales must be found. But the practice deserves consideration on its merits, for it clearly tends directly to increase stale losses. To put bread into dealers' hands virtually on a consignment basis is to ensure the emergence of high stale bread losses.

Certainly there is no reason to believe that this policy will increase the aggregate sales of baker's bread, and it is very doubtful if it really increases materially the sales of wholesale bakers' bread. What one wholesaler may gain by it, a competing wholesale baker is likely to lose. The advantages are likely to be temporary. Adopted generally by the trade, it is likely to result in huge stale losses for which there is no compensating gain. Thus a Newark baker, writing to one of the trade papers in 1916 said:[12]

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[11] See below, pp. 56–57.

[12] *Bakers' Helper*, December 1916, p. 1304.

The custom in the metropolitan district has been for many years to give the grocers just as much bread as they would take, regardless of the amount they would sell; and in consequence every grocer had considerably more bread than could be sold in any one day under the most favorable conditions. The result of this vicious practice was that every baker was obliged to exchange 20 and sometimes 25 per cent of his bread that had not been sold by the grocer. I am glad to say these conditions do not exist at the present time; and I believe the trade is being better served, and the baker is in a better position to regulate the manufacture and marketing of his products.

The grocer did not co-operate with the baker, nor did the salesman see the advantage of cutting down his sales, at first; but by persistent efforts on the part of our salesmanager we have been able to bring about this change, which has resulted in a decrease of more than 10 per cent.

In its extreme form the pushing policy shows up in bread price wars, when bakers resort to every conceivable device in order to increase their sales or prevent their reduction in favor of competitors. This was strikingly illustrated in a middle western city, where in the fall of 1922 a price war was being waged between rival wholesale bakers. One phase of this struggle for trade dominance was the persistent overloading of retail dealers with bread beyond any conceivable expectation of sales. The deliveryman arriving first at the dealer's place of business, frequently before the store was opened in the morning, would leave an excessive quantity of bread, measured by any reasonable standard. The next driver to arrive followed suit, and the next,—each striving to outdo his rivals in having his product represented in the dealer's stock. The dealer took no risk, for the drivers promised to take back any unsold surplus the following day and to replace it with fresh bread. Such unsold bread was commonly resold to farmers for hog feed, in some cases at prices as low as one cent per pound in wholesale lots. The resulting financial loss to the bakers of the city was estimated by the local Health Department officials to be in excess of $1000 a week during the continuance of this practice, which, by the way, was in open violation of a state law prohibiting the return of stale bread.

A pushing policy by wholesalers, especially if accompanied by advertising drives, premiums to purchasers, and the like, introduces a disturbing element into the calculations of the retail bakers and may cause their losses from stale or unsold bread to become excessive. If the dealers of a neighborhood are overstocked with wholesalers' bread which can only be moved by offering premiums,

cut prices, or other special inducements to purchasers, the business of the retail bakers is apt to be upset, for the time being at least, and the stale bread loss increases for the retailer as well as for his wholesale competitor. It is very doubtful whether such selling drives, an essential feature of which is the assurance to dealers that they will be relieved of any unsold bread remaining in their hands, can increase permanently the total volume of business by wholesalers at the expense of the retail neighborhood bakers. Such competitive methods are often shortsighted from an individual standpoint, as well as wasteful from a general point of view.

The foregoing discussion indicates, with perhaps sufficient fulness, why the practice of exchanging bread, or taking unsold bread out of the dealer's hands, is so common today, and why it is no easy matter to alter it. Nevertheless, many bakers have successfully coped with the difficulties involved in the opposite policy, and feel distinctly satisfied with the result. Their experience deserves careful consideration.

No-Returns as an Individual Policy

The practice of taking back unsold or stale bread may be abandoned in one of three ways: as a matter of individual policy; as a result of an agreement or understanding among at least the leading wholesale bakers; or through the adoption and enforcement of municipal ordinances or state laws prohibiting the practice.

All of these are common. Of 38 bakers reporting to us that they do not accept returns from dealers, 12 operate under state laws prohibiting returns; 13 have an understanding with competitors on the matter; 5 do so as a matter of individual policy, without the support of either law or trade agreement; and 8 others, who do not expressly say so, apparently also act independently.

As we have already indicated, most bakers feel unable to maintain, single-handed, a policy of no-returns. Other things being equal, dealers will resent such a departure from the general practice and discriminate against the goods of the baker who adopts this policy. Yet notwithstanding this tendency, a number of bakers find it possible independently to refuse to take their unsold bread out of the stores, and their number is steadily increasing. Under what conditions is this feasible?

In the first place, it is easier where the baker concerned has

already achieved a dominant position in the bread baking industry in his locality. Where this is true, dealers can less readily discriminate against his product, and consumers can less easily turn to other brands. Still, this advantage is likely to be short-lived, because of the ease of growth of existing competitors or the entrance of new ones, unless the baker can maintain his reputation for getting his bread really fresh to the consumers' tables. Conversely, it is well-nigh impossible for the smaller bakers in a territory to maintain a no-returns policy if one or more large and powerful competitors insist upon exchanging bread. Leading bakers have therefore an exceptional responsibility for the general prevalence of large losses from stale bread.

The maintenance of a no-returns policy by an individual bakery requires exceptional attention to keeping quality, promptness in delivery, the education of the dealers, and the cultivation of their good will. Two concerns, one in the east and one in the west, that have been conspicuously successful in their respective fields, pride themselves upon the fact that they have never accepted bread returns, even when their competitors did. Both are leaders in the quality of their product, and, among other things, in its keeping quality. Another baker, the only wholesaler in his territory who refuses to exchange unsold bread, delivers three times a day and sees to it that the first bread into the store is the first bread sold. Another baker reported special efforts to develop among his clientele of dealers a loyalty to the baker and a sympathetic understanding of the problems in getting bread fresh to the consumer, that he linked up his advertising with the dealers' interests, and that he educated them up to ordering conservatively and to assisting his salesmen in forecasting sales. Others attribute their success to close figuring on orders and instructing drivers not to overload the retailer. All of these methods are factors in the success of a no-returns policy, however it be adopted; they are essential in enforcing it successfully against a general practice to the contrary.

Where a baker has once succeeded in establishing a policy of no returns, in the face of competition from bakers who take back bread, he stands to gain a certain advantage over his competitors. Dealers know that they cannot return his bread, while they can return the bread of other bakers. Toward the close of a day, therefore, his bread is likely to be pushed by the dealers,

if they find sales falling below their expectations, at the expense of sales of returnable bread. This advantage tends to offset, partly or wholly, any reduction in sales due to over-cautiousness in ordering.

The enforcement of a no-returns policy during 1918 increased the possibility of continuing this policy after the prohibition was removed. Both grocers and bakers learned, through that experience, various methods of minimizing the difficulties which a no-returns policy involves. It is always far easier to maintain a new practice which has been tried out with some success, than to break a long established custom to which dealers as well as bakers are firmly wedded.

In this connection the experience of newspaper and magazine publishers is of interest. Many of the same conditions govern the distribution of bread and periodicals. Both are more or less perishable. The sale of both must be timed to meet consumers' needs, and any production in excess of current demand results in unsold products and a net loss. In both cases consumers' demands are extremely variable; in both the state of the weather plays a most important part in determining the volume of sales. In both the attitude of the retail distributer is frequently decisive in expanding or limiting sales opportunities. The newspaper circulation manager, no less than the bakery sales manager, must face the problem whether or not to accept returns of unsold goods from retail distributers. The forces of competition operate in the same way. In particular the railway news companies frequently play off one newspaper against another, threatening not to carry any non-returnable papers. Newspaper men report that in a large percentage of cases newsdealers will abuse the return privilege, ordering more copies than they can sell, knowing that they will not have to stand any loss from unsold copies. Where one paper is on a returnable basis and another not, the tendency is for the newsdealer to order a limited number of the non-returnable paper and to push its sale until it is sold out,—after which he will supply further requests, as far as possible, with the returnable newspaper.

Newspaper men have found the returns question a perennial problem just as bakers have. Like the bakers, they welcomed the action of the War Industries Board during the war in ordering the discontinuance of the practice of accepting returns, as a

conservation measure. Since the war a considerable number of them have drifted back to the return privilege policy, just as many bakers have done, but a large number of progressive publishers have put their papers on a non-returnable basis and are successfully maintaining that position.

In the case of Sunday editions, some publishers relax somewhat their general policy of no returns. The dealer's investment in the Sunday edition is so large that losing the sale of only a few copies will often wipe out his profit. The extension of the return privilege in this case protects him from loss and probably helps expand sales somewhat. Some newspapers also protect merely their city newsboys,—not the route-carriers, but the downtown street news venders. There is some argument to support this practice, based upon the spasmodic character of the demand, which fluctuates with news interest, weather conditions, and possibly other factors. Many publishers, on the other hand, refuse to grant the return privilege to anyone and deny that it increases circulation to any appreciable extent,—at least not to an extent sufficient to offset the increased costs involved. It is of significance for bakers that so many publishers of newspapers and magazines succeed, merely as a matter of individual policy, in refusing to take back unsold copies, and that they find this policy a paying one.

It is possible that an individual newspaper publisher, on the average more easily than an individual baker, can adopt a policy of no returns without suffering a loss in net sales. A newspaper usually has a more distinct individuality than a loaf of bread, and its readers are usually more insistent upon having it than are the regular consumers of any particular brand of bread. If the quality of the product is stressed, and if production is carefully adjusted to demand, as far as may be, it appears quite feasible for an individual newspaper to adopt with complete safety a policy of no returns. On the other hand, newspaper publishers, unlike bakers, cannot adopt measures for prolonging the freshness of their product, although magazine publishers do so to some extent.

Our conclusion is that individual bakers can, under most circumstances, maintain a policy of no returns even in the face of a general practice of competitors to take back unsold bread, provided they can and will take the steps necessary to meet the

conditions which this policy imposes. The policy may cost them some business, at least at the outset, but it need not prevent their growth or even seriously retard it. Nevertheless, it is clearly difficult for a baker to depart so considerably from the custom of the trade. Only the stronger and abler bakers can afford to do so. There is little likelihood of a radical reduction in stale bread loss in the country as a whole except through coöperation in the trade or by legislative action which bakers will support.

TRADE AGREEMENTS OR UNDERSTANDINGS

An obvious mode of abolishing the practice of taking back unsold bread is to secure a formal agreement or an informal understanding to this effect among the leading wholesale bakers. Until recently this has been the commonest method of departing from the established custom. In most large cities the great bulk of the bread sold by dealers is baked by not more than six or eight wholesalers; in medium-sized cities there are often only three or four who supply most of the trade. Frequently these few are the leading spirits in a local association of bakers. If these leaders are convinced of the serious results of the returns policy, it is often possible for them to get a no-returns policy adopted by the local association, or for them to get together individually in adopting this policy for themselves.

There are several obstacles to the adoption of such an agreement. No baker likes to be known to the dealers as responsible for initiating such a move, lest it react directly upon his business. Competing bakers are suspicious of one another's sincerity, and lack confidence in the willingness of competitors to enforce the policy. Some doubt the legality of such an agreement. Unfortunately there is great uncertainty as to the scope within which competitors may lawfully make agreements concerning their business operations. There is often a fear that the adoption of an agreement, regardless of its real merits, will occasion a publicity campaign against bakers as conspirators against the public interest, from which the bakers find it difficult to defend themselves unless they employ publicity experts. If the agreement survives such early attacks, however, these are not likely to be renewed.

The chief problem with an agreement lies in its observance. Under existing law, the aid of the courts cannot be invoked to enforce such an agreement. Its enforcement rests upon the voluntary action of the subscribers. One baker may quietly depart from

the practice, in the hope of currying favor with dealers. Once the agreement is broken by one baker,—indeed, even if a rumor to this effect is circulated,—other bakers tend to follow suit.

Our questionnaire returns indicate that, in spite of these obstacles to adoption and enforcement, such agreements are fairly common and that the experience of bakers with them has been on the whole fairly satisfactory. Thus of the 20 bakers who reported working under trade agreements not to accept returns (including 4 who were subject to a law as well), 9 reported the agreements to be fully effective, 5 others gave at least a partial endorsement, and only 6 indicated that the agreements were not effective. Of the 38 bakers who expressed an opinion as to the desirability of such trade agreements forbidding the acceptance of returns, 26 endorsed and 12 opposed the principle of agreements as a means of reducing stale bread losses. A few qualify their endorsement by adding, "if all will comply." Several express very positive dissent from the whole idea of trade agreements, maintaining that legislation is the only effective remedy for the control of returns. On the other hand, some bakers state that agreements are advantageous even though all parties do not keep them to the letter. Clearly the difficulty of securing general compliance is the outstanding obstacle to the success of the agreement principle. One baker reported that he opposed such an agreement "because we would not live up to it."

In a few instances such trade agreements have been conspicuously successful, for example, in San Francisco before 1918. In each of these cases most of the leading wholesale bakers were included in the agreement. The San Francisco bakers had a strong trade association which was authorized to take certain measures to ensure compliance. As recently as October 10, 1922, the bakers of Baltimore adopted an agreement to discontinue the practice of exchanging bread and have empowered an attorney to act as umpire or referee in overseeing the operation of the agreement. This particular experiment will be watched with special interest because of this latter feature, copied from the experience of the baseball and motion picture "industries."[13]

Provided it meets with no legal opposition, the trade understanding is a promising mode of altering the policy respecting

[13] The action of the Baltimore bakers in deciding to abolish the practice was inspired in part by the inquiry of the Food Research Institute into the general problem of stale bread losses and by the publication of its preliminary report on this subject in September 1922.

returns of unsold bread. Even where it is not entirely effective, it is likely to pave the way for legislation. Our conclusion is that an extension of such agreements will go far, both directly and indirectly, toward solving the stale loss problem, and that this extension should be encouraged by the trade and the public. We believe that agreements among bakers not to take back unsold bread from dealers are in the public interest, and that they serve to raise the plane of competition rather than to restrain competition to the injury of the consumer. Where they are adopted, however, it is necessary for the bakers to deal reasonably with the grocers and to see to it that the problem of stale bread loss is really solved instead of being passed on to the retailers. It is also highly desirable that the legality of such agreements should be tested and given general recognition.

LEGISLATION AGAINST RETURNS

Conscious of the stale bread evil and of the difficulties in eliminating it by individual action or local agreement, some bakers have urged for many years the passage of legislation to control the practice. As early as 1907 it was proposed at an annual meeting of the Bakers National Association of Great Britain to ask Parliament to forbid the exchange of stale bread in the interest of hygiene and public health.[14] Nothing came of this. In Wisconsin, about 1910, the state bakers' association sponsored a measure prohibiting returns; but the wholesale bakers opposed and defeated the bill, and withdrew from the association. Other instances could be found.

Since the war, however, after experience with the regulation of the Food Administration (which was by no means universally enforced), six states have adopted the prohibition, either as an amendment to the law regulating the production and sale of bakery products or as a section in a new law on this subject. These were adopted as follows:

March 10, 1919	Indiana
June 26, 1919	Wisconsin
March 20, 1920	Virginia
May 6, 1920	Massachusetts
June 2, 1921	California
June 7, 1921	Ohio

The relevant sections are reprinted in Appendix II of this report.

[14] *Bakers Helper*, August 1907, p. 804.

Ostensibly two objects are sought: to prevent the contamination of fresh bread by stale bread that is taken out of the stores, in case it may have become infected; and to prevent waste of food. The first object is important as the principal ground upon which the constitutionality of such a law might be sustained, if attacked. Undoubtedly, the second object weighed more heavily with proponents of the law, both in the trade and outside.

The enforcement of the law is usually entrusted to the state board of health or to the dairy and food commission or commissioner. These officials are expected to make the regulations necessary to carry the law into effect and to take steps to enforce it. The Wisconsin regulations are reprinted in Appendix III of this report. In most cases the actual enforcement rests with local officials, though in Ohio there is a central force of 20 inspectors. Penalties for violation are usually prescribed in the act, usually fines of moderate amount.

In all of these cases this new legislation had substantial support from the baking industry, and usually the endorsement of the bakers although not their unanimous support. In fact the bakers' representatives have had much to do with drafting the bills. It is too early to say that these laws have been thoroughly tried out, but it is time to review the experience of bakers operating under them and the methods of enforcement which have been attempted.

Fifteen bakers out of sixty-one answering our questionnaires reported that they were operating under state laws prohibiting the practice of taking back unsold bread. Without exception these bakers expressed themselves, several emphatically ("decidedly," "absolutely," "positively," "by all means") in favor of such a law. This was true even of a company operating where a state law was not enforced. Only one cautiously said "Yes, if enforced." This testimony from experience is striking.

Furthermore, of the 20 bakers who replied that they were operating under a local understanding not to accept returns (including four now operating also under a law) all went on record in favor of a law, expressly or by implication indicating a belief that legislation is preferable to local agreements. Bakers now operating under neither law nor agreement, on the other hand, show a great divergence of opinion. Of 20 such bakers answering our question, 10 favor a law, 9 oppose it, and one reports himself undecided. Ten others, some of whom have never ex-

changed bread, did not answer the question and are apparently indifferent to legislation.

The case for legislation is well stated in a letter from a Virginia baker of long experience. He writes that since the passage of the state law in March 1920,

> . . . . our stale bread losses have come to an end, practically speaking, for this law is strictly enforced.
>
> Prior to that time our losses from this source would run from 4 to 8 per cent of our output, and there did not appear to be any way it could be controlled. A bonus of $15.00 per month was offered to the salesmen who kept their stale returns to 4 per cent or less, but this did not have the desired effect.
>
> Competition, of course, was the answer. The dealer had nothing to lose and all to gain by buying more bread than he thought he could sell. It was his gain if he sold it and our loss if he did not. The salesman, working on a commission basis, viewed the matter in the same light. Route Managers, who were unbiased and working on a straight salary, found that if they would not give the dealer the amount of bread wanted the tendency was to buy from competitors who would. It can be seen from the above that the control was not in our hands and that we simply had to trust to Providence to keep the figure as low as possible. Attempts to regulate this evil by cutting the quantity ordered by the salesman had no effect, because he soon learned this trick and padded his order to the extent that he thought he would be cut.
>
> Agreements between the bakers to refuse to accept stale returns proved disastrous. Everybody was willing to enter into such an agreement, but few were willing to live up to it. Those who did found their business slipping.
>
> Our experience is that the problem, without being regulated by law, cannot be solved, where competition exists. Not only is the Baker the loser in dollars and cents to the extent of the stale returns, but his business is, to a certain extent, out of his control and not in balance.

We think it fair to conclude that the weight of opinion among bakers who have experience with a no-returns policy, and particularly with trade agreements and legislation against the returns practice, is definitely in favor of state laws on the subject. Some of the state or sectional baking associations have recently gone on record in favor of legislation. Last October a group of large bakers in New York City, called to consider the stale loss evil there, concluded to press for a state law prohibiting the exchange of unsold bread.[15] Opinion in the trade is evidently becoming more favorable to legislation on this point.

[15] A resolution proposing a bill to this effect was moved by a New York City baker at the annual convention of the New York State Wholesale Bakers' Association, December 11–12, 1922. After discussion, however, the resolution was tabled. *Bakers' Weekly*, Dec. 16, 1922, p. 42; *Bakers' Helper*, Jan. 1, 1923, p. 39.

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This opinion is not, however, as nearly unanimous as our questionnaire returns would indicate. One successful eastern baker, for example, has opposed on principle all measures for regulating the baking industry, believing that the best results for bakers and consumers alike will follow from the free play of competitive forces, and that the tendency of all regulative action is to shackle business. This baker has long been accustomed to exchange unsold bread, and resents this particular attempt by law to make him alter his practice.

Another successful baker of wide experience, who also has always been accustomed to exchange unsold bread but who does not oppose legislative regulation on principle, writes:

> The.....Company believes that the return of stale bread is not only a wise protection of its own interests, but is a necessary evil of the business. It distributes bread entirely through retailers, and feels that they deserve some protection in their purchases of bread. In doing this, we believe that we are sharing with our distributor, or retailer, the almost impossible responsibility of deciding each day what amount of bread will be demanded by the neighborhood.
>
> At points where stale bread laws are in effect, we find that the wagon salesmen hold over bread from one day to the next, and actually circulate stale bread just as they do in other cities where there are no stale bread laws. . . . .
>
> The.....Company does not believe that any of the stale bread laws which are now in effect, or any which might be drawn in the future, would stand a serious test in court. We believe after a very wide variety of experience in communities that have laws and communities which do not have laws, that the baking business will benefit more with permission to return stale bread. Proper control of it by bakery managers will not meet with a very large loss in this department. In fact, it might be considered a worth while investment.

It has also been reported that "In the City of Cleveland, which is notoriously strong for retail bakers, it has been discovered that the law is very reactionary against the wholesale bakers, because the retail bakers have broadcasted a statement to the effect that fresh bread can no longer be purchased in the Cleveland grocery stores, and that the housewives will be wise in securing their breadstuffs from the retailer, who calls at the door each morning." This, indeed, may be only a passing incident. In this connection it is significant, however, that in Wisconsin, as recently as September 1922, the retail bakers' association instructed its Board of Directors "to support and help strengthen the present law by all means at

their command and to oppose strenuously any attempt of persons or organizations to effect its repeal or in any way to weaken it".[16] At present, the retail bakers there evidently believe the law to operate in their favor.

The facts, however, will answer. As we have pointed out, and as all those endorsing regulation would agree, the adoption of a no-returns policy necessitates special effort on the part of the wholesaler to see that his bread reaches consumers really fresh. If he cannot do this, retail bakers will get his business. If he can do this—and many do—he will soon convince consumers that such statements as that quoted above are false, and will regain and retain his full share of the business.

CAN THE LAW BE ENFORCED?

The question whether legislation of this sort is constitutional has not yet been passed upon by the courts. The present laws are likely to be tested in the near future. If they should be thrown out, modifications may be expected, and it may be some years before the issue is finally settled. We are not prepared to discuss this question, nor to elaborate the features of a model law on the subject. For the present, however, one must proceed upon the assumption that the laws are constitutional.

The degree of enforcement of present laws is very different in different states, and in various sections of any one state. This is inevitable where much depends upon local enforcement officials, of varying intelligence and ability, and upon the local sentiment in the trade. The normal policy of enforcement officials, in dealing with a practice of such long standing, is to proceed tactfully instead of with extreme harshness at the outset. Hence it is unsafe to generalize about the enforcement to date. In any case, numerous violations must be expected in the early years of such legislation. The principal question is whether the laws are coming to be enforced better and better, or whether they are gradually becoming a dead letter.

In Virginia our limited information indicates that strict enforcement is the rule, at least in leading centers. In California there is considerable variation in different sections. In San Francisco a trade agreement was in force before the law went into effect, and with the continued support of the leading bakeries the

[16] Resolutions adopted by the Annual Convention of the Wisconsin Association of Master Bakers, Sept. 12, 1922.

law has been fairly effective. In Los Angeles representative bakers offered their best efforts to secure enforcement, on condition that the enforcing officials would act impartially, and as a result the law is understood to be substantially enforced. Elsewhere conditions vary a great deal. The returns to our questionnaire indicate fair success in several cities, but other information indicates that violation is a continuing source of trouble.

In Ohio, the enforcement has been rather strict throughout the state. The commissioner first sought to educate bakers in regard to the meaning of the law, and provided speakers for grocers' meetings at which the law was explained. Friendly warnings were sent to bakers all over the state after the law first went into effect in 1921. Since then over 400 bakers, drivers, and grocers have been cited to appear before the Director of Agriculture for a hearing. A number of cases have been taken to court and fines imposed.

In Indiana there has been no such vigorous attempt at enforcement of the law, apparently in part because it has not been necessary. The state commissioner has occasionally written letters to bakers asking their coöperation. Recent attempts to bring cases into court, however, have been blocked by the refusal of a local prosecutor to act, because of his belief that the law is unconstitutional. Indiana bakers differ as to the degree of enforcement. One writes us that the law is not enforced in his locality. Another writes that it "is being enforced as far as we know", and that "we think the law has reduced the stale losses generally." The secretary of the state bakers association writes that Indiana bakers are not bothered much with stale losses, since returns of unsold bread are against the state law. The state food commissioner writes that "exchange has been reduced to the minimum throughout the three years that the law has been in force."

The situation in Wisconsin is also complex. At least in one important city there have been a number of prosecutions. Of two reports from that state, one indicates that the law is not enforced, the other that it is. The recent action of the state Association of Master Bakers, quoted above, indicates that complete enforcement is not yet the rule.

In Massachusetts the enforcing officials seem to have paid little attention to this section of the act. They have had little complaint of violations and have not set out to find instances on their own

account. Information from unofficial sources indicates that in the western part of the state bread is still exchanged in large quantities, while in the eastern section the bakers work more together and comparatively little bread is exchanged.

It is significant that of fifteen bakers who reported to us that they were operating under laws of this character, two acknowledged that they accepted returns, while another failed to answer this question. Probably some bakers hesitated to answer our questionnaire because they did not wish to admit, even in confidence, that they were exchanging bread in the face of a law prohibiting the practice.

The laws have had only a brief trial. At worst they are far from being a failure. On this point the results of our questionnaire seem conclusive. Even where the law is inadequately enforced, it is not without effect. One baker, indeed, wrote point-blank in answer to two successive questions: "The law is not enforced in our city." "It has reduced our stale loss considerably." In one city in Indiana, where no prosecutions proved possible, enforcing officials believed that their efforts had reduced the loss of stale bread more than 50 per cent.

Nevertheless, it is very clear that the mere passage of such a law does not eliminate bread returns. As in the case of so many regulatory laws, the degree of enforcement depends largely upon the trade interests concerned. The public interest involved, though considerable, is not readily appreciated and focussed. As one baker writes:

> The enforcement of a law such as we have in this state is difficult, if not impossible, unless there is a conviction on the part of the bakers and the grocers that the statute is reasonable, logical, and beneficial to them and to the public. I feel that law observance should be stressed more than the emphasis we place upon enforcement.

Our conclusion is that the laws can be made effective, but only if the bakers and dealers give them their support, and if the officials set out to enforce them. In Ohio, where the state officials have sought intelligently and vigorously to secure general compliance, they express the opinion that the law "is being fairly well complied with" and that with the "same unceasing campaign that is now on, this law within the near future will be obeyed as well as most of the laws on the statute books of Ohio." It is added that "the sentiment among the bakers is almost unanimously in favor

of obeying the law; the driver of the truck is inclined to line up with the baker; the grocerymen are about evenly divided, pro and con, as to the justice of the law." In Indiana, where attempts at enforcement have met with special obstacles, it is stated that "The bakers of Indiana almost without exception, are in favor of the legal restriction of bread exchange, but on the other hand the retail grocers, almost to a man, are opposed."

THE POSITION OF THE DEALER

In view of his importance in bread distribution and his strong tendency to insist upon the exchange of bread left on his hands, the retail dealer's position calls for special consideration. On the one hand, it is out of the question to expect him to welcome the abolition of the privilege of exchanging bread; it usually means placing some additional responsibility upon him for adjusting his orders to requirements and cleaning up his stock at the end of the day; and it may entail some loss if he has unsold bread that he cannot sell as fresh next day. It is not surprising to find that grocers have opposed the passage and enforcement of laws prohibiting returns of unsold bread.

It is reasonable to argue that the grocer's margin on bakery products is quite high enough to justify his bearing occasional and moderate losses on stale bread. His investment in bread is small, his turnover is very large. The labor involved in handling is small. Little or no wrapping is required. As cash and carry stores well know, the handling of good bread brings other trade. Yet the grocer seldom gets less than 20 per cent gross profit on bread, nearly as much as on some other products in which his investment is much higher and his turnover much slower. Under these circumstances, dealers can afford to absorb some losses on unsold bread, although they cannot afford to bear the loss that would be entailed by the amount of unsold bread that bakers take off their hands.

If the matter is correctly handled by the bakers, the dealers should have occasion to suffer little or no loss. If bread delivered to the grocer one day is fresh enough next morning to be readily saleable, as it should normally be, any leftovers can be so placed as to be sold first and will occasion no loss. Somewhat closer calculation on Saturdays may be necessary, and may lose the grocer a little trade, but not much. In both respects the bakers' sales-

men can and should be of great help to the grocers. It is the well-nigh unanimous opinion of bakers reporting to us that the adoption of a no-returns policy, by whatever method, leads dealers to order more carefully, and thus to assist the bakers in curbing losses.

Whenever any attempt is made to abolish the privilege of returns, by law or otherwise, the chances of success are greatly increased if bakers will take all steps possible to enlist the sympathetic interests of the grocers,—in the common phrase, "to sell the idea" to them, by explaining the reasons for the step and the importance of it to the community, and also by going fully into the changes in ordering practice which the no-returns policy implies. Unless this is done, the grocers are likely to be hostile, and they may seriously interfere with putting the new policy into effect. If this can be done, a large measure of support from the dealers can be won. If then the inevitable difficulties of the transition period are tackled in a resolute and friendly spirit, they can be overcome without straining the relations between baker and dealer upon which the success of both in large measure depends. As one successful baker reports to us:

> . . . Dealers will coöperate if the matter is explained to them. I had a meeting with a number of grocers who were antagonistic to our present State law and after going over the ground, they agreed that the law was logical and reasonable and some points that grocers at that meeting brought out made a favorable impression upon their colleagues. One of them stated that before the law became effective he started the morning's business with his bread case three-quarters filled. He told the delivery men of the various bakeries that they should see to it that he would not be overstocked, and instead of having a substantial quantity of bread on hand in the morning, delivered the day previous, there was only sufficient to take care of the morning trade and the customers coming later were served with fresh bread delivered that day.

The success of the San Francisco agreement among the bakers, until in 1921 the law virtually superseded it, was due in no small part to such measures taken by the bakers and the response made by the grocers. With the same object the Maryland Association of the Baking Industry began its recent campaign in Baltimore against the practice of returning unsold bread, by addressing a letter to the grocers of the city setting forth briefly the reasons for the decision to end the practice and concluding: "This action is prompted by a sincere motive to help housewife, grocer and baker, and we trust that we can count upon you for your full coöperation and support."

Dealers have a direct interest not only in the further extension of the use of bakers' bread, which we believe will follow the solution of the stale bread problem, but in a high standard of sanitary condition of the bread they sell. There is no question but that the maintenance of such standards is more difficult if bread is exchanged. In one recent instance the local enforcing officials found in a baker's wagon "returns and exchanged bread badly eaten by mice or rats" and in one grocery "stale bread in a basket for return and exchange that the mice had almost eaten." This sort of thing is certainly not common, but it will occasionally occur; and when it does, the grocer with a high reputation for cleanliness stands to be injured by the negligence of grocers who are less careful.

We are disposed to believe that the dealers generally, while they stand to gain least by the abandonment of the practice of exchanging unsold bread, need not be injured by the change, and that if tactfully approached in the first place and if properly aided in overcoming the difficulties which the new policy may bring, they will cheerfully give it a fair trial and will in the end be convinced that they can well afford to play their part in making it a success.

IS THE ELIMINATION OF STALE LOSS TOO COSTLY?

A final question will occur to the baker. Granted that the amount of stale loss can be greatly reduced by improving keeping quality, smoothing the process between baking and ultimate sale, adjusting output to requirements, and abolishing the practice of returns from dealers, will the adoption of these policies cost more than the loss they reduce? Many wastes in industry could be eliminated, but actually persist because the elimination would cost more than the economy would justify. Is this the case here?

Apparently not. The waste cannot be substantially reduced without difficulty and expense, but the extra cost is far from prohibitive. Most of the necessary modifications of policy that are called for are not expensive. Of some it is largely true that their "first cost is the last"; that is to say, the added expense appears in the learning of an art, the development of the business organization, perhaps the provision of a moderate amount of machinery, rather than in materially higher costs of operation. Some bring directly compensating advantages. The practice of accepting returns itself involves additional labor, in the handlings of returned bread, that can be eliminated without a corresponding increase in other labor

costs or overhead. Certainly none of the concerns reporting to us a policy of refusing to accept returns intimated that they experienced any increase in costs that could appreciably offset the saving on the stale bread.

The vital question is: can bakers maintain and increase their sales volume without accepting returns from dealers and thereby incurring considerable stale losses? If they cannot, a reduction in stale bread losses may be offset by higher overhead. But experience in the trade proves conclusively that many bakers do expand their sales while adhering to such a policy, and indicates that there is no inherent reason why this cannot be done more generally. If this is possible, the basic objection to radical reductions in stale bread losses vanishes.

THE CONSUMER'S INTEREST

In the main we have discussed the subject of returns from the standpoints of the baker and dealer, except in so far as the amount of stale bread tends to increase the cost of bread to consumers. It must now be asked, is the consumer's interest directly endangered by individual policies, trade understandings, or legislation against the return of stale bread?

There is one obvious possibility of injury. If bakers simply refuse to accept returns and make no effort to improve the keeping quality, to speed the bread from the oven to the table, to adjust production to requirements, consumers will have to expect to buy some bread of a standard of freshness below that to which they have become accustomed. This bread would not injure their health or efficiency; it would merely be less palatable. Even this injury will be diminished if the bakers succeed in their effort to popularize the eating of toast, for which bread is better if somewhat dry and moderately stale bread is entirely satisfactory.

We cannot, however, believe this danger is serious. The competition of the retail baker and the housewife is so keen that the wholesale baker's volume of real business, hence his business success, depends upon getting his bread fresh into the hands of consumers. If he refuses to take bread back from dealers, he must, in his own interest, find other methods of preventing bread with his label from reaching the consumer somewhat stale. These methods lie open to him. The progressive baker will adopt them. Those who cannot do so will make way for others who can.

While we have had no opportunity to make a detailed survey, we have seen no evidence to indicate that bread consumers fare less well, or are less satisfied with baker's bread, in communities where the practice of accepting returns from dealers has been abandoned. The contrary is quite as likely to be true.

Consumers have a real interest in supporting a policy of no returns, beyond the possible effect upon price. It tends to give them bread of higher keeping quality, and may in this way raise the food value and even the standard of freshness of the baker's bread they consume; and it removes the danger of contamination of fresh bread from stale bread that has been carelessly handled and even exposed to vermin before the baker's driver takes it back.

It may also be argued that local agreements or understandings to enforce a no-returns policy will lead to price agreements or consolidations inimical to the consumer, if not to the monopolization of the sale of bread in a particular locality. How far consolidations and price agreements are dangerous and how far they are advantageous to the consumer, is a matter deserving special study. In any case, it must be said that, while any kind of coöperation among competitors involves such dangers, freedom from these dangers is dearly bought if it means the loss to the community of the many advantages arising from trade associations and understandings. At most, this fear supplies an argument for legislative action, rather than trade agreements, as a mode of eliminating the return of stale bread.

We believe that the elimination of the practice of exchanging bread will operate in the long run, if not absolutely from the outset, to the consumer's advantage, and that the danger of injury to the consumer's interests is slight. The movement to reduce stale loss, and the return of unsold bread as a factor in this loss, deserves the warm support of consumers individually and of consumers' organizations.

APPENDIX I.

Questionnaire on Losses from Stale Bread

FOOD RESEARCH INSTITUTE

Stanford University, California

I. General Information

1. Name of firm or company: .....
2. Address: .....
3. Number of plants operated: .....
4. Location of plant to which the information herein applies:
   (NOTE: Information is desired by plants, not by companies. If you operate two or more plants, please answer with reference to one plant selected as representative, or preferably fill out a similar questionnaire for each plant.) .....
   .....
5. Date: ..... 6. Signed: .....

II. Questions

1. Does stale bread loss constitute an important item in your business? ..... Has it increased or decreased in importance since 1919? ..... Is it larger or smaller than before the war? .....
2. What percentage of your total production of bread and rolls, in pounds, did you find it necessary to dispose of as stale bread in the first six months of 1922? .....
3. Please indicate the percentage of net stale loss, in dollars, to your gross sales of bread and rolls, in dollars, for the first six months of 1922. .....
4. For how many hours after baking (i. e., after the bread comes from the oven) can you treat your standard loaves as fresh enough to be accepted without question by the trade? .....
5. How many hours, on the average, elapse between the time your bread is baked and the time it reaches the retail stores
   (a) on the morning deliveries? .....
   (b) on the afternoon deliveries? .....
   What measures do you take to keep this time to a minimum? .....
   .....
6. Do you cater to the demand for "hot" bread on your afternoon deliveries? ..... Is there any relation between the demand for "hot" bread and the amount of your stale loss? .....
7. How do you handle fresh unsold bread remaining on the drivers' wagons at the end of the day? .....
8. Do you find it difficult to adjust your production to variations in consumers' demands from day to day? ..... If so, for what reasons? .....

9. To what extent do you base your production of bread upon your drivers' orders? .....
10. Do you find it necessary, as a regular practice, to alter the quantities called for by the drivers' orders?.....
11. Does your experience indicate a greater relative stale loss,
    (a) in small loaves or in large loaves?.....
    (b) in wrapped bread or in unwrapped bread?.....
    (c) in some types of bread than in others (please specify)? .....
    (d) at certain seasons of the year than at others (please specify)? .....
12. Do you accept returns of unsold bread from retailers?..... Why, or why not?.....
13. Is there a state law or local ordinance in your community prohibiting the return of unsold bread by retailers?.....
    (a) If so, has it caused the retailers to order bread more carefully?.....
    (b) To what extent has it reduced your percentage of stale bread loss?.....
    (c) Do you favor such a law or ordinance?.....
14. Is there any agreement or understanding among the bakers in your community not to take back unsold bread from the retail stores?..... If so, is it effective?..... Does it include *all* the wholesale bakers?..... Do you consider such an agreement desirable or undesirable, and why?..... .....
15. If you have succeeded in keeping down your percentage of stale loss, to what policies do you chiefly attribute your success?..... .....
16. What are the principal obstacles to the reduction of stale loss in your business? ....

III. SUPPLEMENTARY COMMENTS

APPENDIX II.

Extracts from Laws Prohibiting Returns of Unsold Bread

INDIANA

General Laws, 1919, Chapter 56
THE "MODEL BAKERY LAW"
Approved March 10, 1919

SECTION 8. All handling or sale of bread or other bakery products and all practices connected therewith shall be conducted at all times so as to prevent the distribution of contamination or diseases among consumers, so as to prevent the distribution or the infection in bread commonly known as "rope" or other bakery infections, and so as to protect the food supply against waste. No bread or other bakery products except as herein after provided shall be returned from any consumer or other purchaser to the dealer or baker, nor from any dealer to the baker, and no baker or dealer shall directly or indirectly accept any returns or make any exchange of bread or other bakery products from a dealer, restaurant or hotelkeeper, consumer or other person, and all bread and all other bakery products shall be kept moving to the consumer in as direct a line as may be practicable and without unreasonable delay and without any exchange, return or practice whatsoever which may disseminate contamination, disease or fraud among consumers or infection among bakeshops, or which may cause waste in the food supply. The Indiana State Board of Health shall make such reasonable rules as may be necessary for carrying into effect the foregoing provisions of this section: Provided, That this section shall not be construed to apply to crackers or to such other bakery products as are packed at the place of production in cartons, cans, boxes, or similar permanent containers and where the product is so packed or sealed at the place of production as to fully protect the freshness and wholesomeness of the product and to protect it from contamination, adulteration, deterioration and fraud in the channels of trade and which remains in the original unbroken package in which such bakery product has been packed, except in so far as may be necessary to prevent waste in the food supply: Provided further, The State Board of Health may by rules establish such exemptions as may be necessary to facilitate the sale of any accumulated or unsold stocks of wholesome bread or other bakery products, but any such exemptions or sales shall not be in violation of the expressed purposes of this section: Provided further, that the phrase "permanent containers" shall not be construed to include the paper or parchment wrappers as used in wrapping loaves of bread.

SECTION 10. Any person, firm or corporation who shall violate any of the provisions of this act shall be subject to a fine of not less than ten dollars, nor more than one hundred dollars, and each day's continuance of any practice, act or condition prohibited herein shall constitute a separate offense within the meaning of this act.

WISCONSIN

Wisconsin Session Laws. Chapter 429. Biennial Session, 1919.

An Act to create section 4608k-1 of the statutes, relating to the sale and delivery of bread and rolls and providing a penalty. Approved June 26, 1919.

1. The sale and delivery of bread and rolls shall be so conducted as to prevent the distribution of contamination, infection or disease among consumers, to protect the food supply of the state against waste and to bring such products to the consumer in as direct a line as may be practicable and without unreasonable delay.

2. No bread or rolls shall be returned from any consumer or other purchaser to the dealer. No dealer shall directly or indirectly accept the return of any bread or rolls or make any exchange of any such products with any person, nor shall any consideration be given by any dealer or baker in lieu of an exchange of such products. The provisions of this subsection shall not prevent the return of bread or rolls which are imperfectly prepared or baked or which are not palatable or nutritious.

3. The dairy and food commission may ascertain and by order declare and establish what conduct or practices are inconsistent with the provisions of subsection 1 of this section and shall by order establish such reasonable exemptions or tolerances as will facilitate and permit the sale of any accumulated or unsold bread or rolls or imperfectly baked or shaped loaves of wholesome bread or rolls, but no such exemptions or tolerances shall be contrary to the expressed purpose of this section.

4. The provisions of subsections 1 and 2 of this section shall not be construed to apply to crackers or to such other bakery products which are not put up for immediate consumption and are packed at the places manufactured in cartons, cans, boxes or permanent containers and which are so packed as to fully protect the wholesomeness and freshness of the product and to prevent contamination. The term "permanent container" as herein used shall not be construed to include paper or parchment wrappers commonly used in wrapping loaves of bread.

5. Any person violating any of the provisions of subsections 1 and 2 of this section or any order of the dairy and food commission issued pursuant to subsection 3 of this section shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than five dollars nor more than twenty-five dollars or by imprisonment in the county jail not to exceed thirty days or by both such fine and imprisonment.

VIRGINIA

Acts of the General Assembly, 1920, Chapter 388

An Act to regulate the sale of bakery products; and fixing penalties for violations of the provisions thereof. Approved March 20, 1920.

SECTION 2. Distribution.—All handling or sale of bread or other bakery products and all practices connected therewith shall be conducted at all times so as to prevent the distribution of contamination or diseases among consumers, and so as to prevent the distribution of the infection in bread commonly known as "rope" or other bakery infections, and

so as to protect the food supply against waste. No bread or other bakery products except as hereinafter provided shall be returned from any consumer or other purchaser to the dealer or baker, nor from any dealer to the baker, and no baker or dealer shall directly or indirectly accept any returns or make any exchange of bread or other bakery products from a dealer, restaurant or hotel keeper, consumer or other person, and all bread and all other bakery products shall be kept moving to the consumer in as direct a line as may be practicable and without unreasonable delay and without any exchange, return or practice whatsoever which may disseminate contamination, disease or fraud among consumers or infection among bakeshops, or which may cause waste in the food supply. The dairy and food commissioner, with the approval of the board of agriculture and immigration, shall make such reasonable rules and regulations as may be necessary for carrying into effect the foregoing provisions of this act; provided, that this section shall not be construed to apply to crackers or to such other bakery products as are packed at the place of production in cartons, cans, boxes, or similar permanent containers and where the product is so packed or sealed at the place of production as to fully protect the freshness and wholesomeness of the product and to protect it from contamination, adulteration and fraud in the channels of trade and which remains in the original unbroken package in which each [such] bakery product has been packed, except insofar as may be necessary to prevent waste in the food supply; provided, further, the dairy and food commissioner, with the approval of the board of agriculture and immigration, may by rules and regulations establish such exemptions as may be necessary to facilitate the sale of any accumulated or unsold stocks of wholesome bread or other bakery products, but any such exemptions or sales shall not be in violation of the expressed purposes of this section; provided, further, that the phrase "permanent containers" shall not be construed to include the paper or permanent [parchment] wrappers as used in wrapping loaves of bread.

SECTION 4. The dairy and food commissioner is hereby charged with the enforcement of the provisions of this act.

SECTION 5. Penalty.—Any person, firm or corporation who shall violate any of the provisions of this act shall be subject to a fine of not less than ten dollars, nor more than one hundred dollars, and each day's continuance of any practice, act or condition prohibited herein shall constitute a separate offense within the meaning of this act.

MASSACHUSETTS

General Acts, 1920, Chapter 418

An Act to regulate bakeries and bakery products. Approved May 6, 1920.

SECTION 2. The standards and requirements hereinafter prescribed shall conform to such rules and regulations as may be adopted by the department of public health, and the provisions of this act and of said rules and regulations shall be enforced by said department and by the boards of health of the several cities and towns, acting under the supervision of said department: *Provided,* that the provisions of this act relating to industrial health shall be

enforced by the department of labor and industries in accordance with such rules and regulations as it may prescribe.

SECTION 14. No bakery products, except as hereinafter provided, shall be returned from any consumer or other purchaser to the dealer or baker, nor from any dealer to the baker, and no baker or dealer shall directly or indirectly accept any returns or make any exchange of bakery products from any dealer, restaurant or hotel keeper, consumer or other person. All such products shall be kept moving to the consumer without unreasonable delay and without any exchange, return or practice whatsoever which may disseminate contamination or disease or inflict fraud upon them, among consumers, or disseminate "rope," so-called, or other infection in bakeries, or which may cause waste in the food supply: *Provided,* that this section shall not apply to crackers or other bakery products which are packed at the place of production in cartons, cans, boxes or similar permanent containers, and which are so packed and sealed at such place as fully to insure their freshness and wholesomeness and protect them from contamination, adulteration and deterioration in the course of trade, and which remain in the original unbroken package as packed, except in so far as may be necessary to prevent waste in the food supply; and *Provided, further,* that "permanent containers" shall not be construed to include the paper or parchment wrappers used in wrapping loaves of bread.

SECTION 15. The department of public health may, by rule, establish such exemptions as may be necessary to facilitate the sale of any accumulated or unsold stocks of wholesome bakery products, and in other cases not inconsistent with the purposes of this act.

SECTION 22. Violation of any provision of this act, or of any rule or regulation adopted hereunder, shall be punished by a fine of not more than one hundred dollars.

CALIFORNIA

Statutes of California, 1921. Chapter 701.

An Act regulating the sanitary conditions of bakeries, prescribing conditions connected with the manufacture and sale of bakery products and fixing penalties for violation of the provisions thereof. Approved June 2, 1921.

Sec. 7. All handling or sale of bread or other bakery products and all practices connected therewith shall be conducted at all times so as to prevent the distribution of contamination or disease among consumers, so as to prevent the distribution of the infection in bread commonly known as "rope" or other bakery infections, and so as to protect the food supply against waste. No bread or other bakery products except as hereinafter provided shall be returned from any consumer or other purchaser to the dealer or baker nor from any dealer to the baker, and no baker or dealer shall directly or indirectly accept any returns or make any exchange of bread or other bakery products from any dealer, restaurant or hotelkeeper, consumer or any other person and all bread and all other bakery products shall be kept moving to the consumer in as direct a line as may be practicable and without unreasonable delay and without any exchange,

return or practice whatsoever which may disseminate contamination, disease or fraud among consumers or infection among bakeshops, or which may cause waste in the food supply. The state board of health shall make such reasonable rules as may be necessary for carrying into effect the foregoing provisions of this section; *Provided,* that this section shall not be construed to apply to crackers or to such other bakery products as are packed at the place of production in cartons, cans, boxes or similar permanent containers and where the product is so packed or sealed at the place of production as to fully protect the freshness and wholesomeness of the product and to protect it from contamination, adulteration, deterioration and fraud in the channels of trade and which remains in the original unbroken package in which such bakery product has been packed, except in so far as may be necessary to prevent waste in the food supply; *Provided, further,* that the state board of health may by rules establish such exemptions as may be necessary to facilitate the sale of any accumulated or unsold stocks of wholesome bread or other bakery products, but any such exemptions or sales shall not be in violation of the expressed purposes of this section; *Provided, further,* that the phrase "permanent containers" shall not be construed to include the paper or parchment wrappers as used in wrapping loaves of bread.

SECTION 9. Any person, firm or corporation who shall violate any of the provisions of this act shall be subject to a fine of not less than ten dollars, nor more than one hundred dollars, and each day's continuance of any practice, act or condition prohibited herein shall constitute a separate offense within the meaning of this act.

OHIO

Legislative Acts, Session 1921

An Act to Fix the Standard for Loaf of Bread. Approved June 7, 1921.

SECTION 2. The standards and requirements hereinafter prescribed shall conform to such rules as may be adopted by the secretary of agriculture.

SECTION 14. No bakery products, except as hereinafter provided, shall be returned from any consumer or other purchaser to the dealer or baker, nor from any dealer to the baker, and no baker or dealer shall directly or indirectly accept any returns or make any exchange of bakery products from any dealer, restaurant or hotel-keeper, consumer or other person. All such products shall be kept moving to the consumer without unreasonable delay and without any exchange, return or practice whatsoever which may disseminate contamination or disease or inflict fraud upon them, among consumers, or disseminate "rope," so-called, or other infection in bakeries, or which may cause waste in the food supply; provided that this section shall not apply to crackers or other bakery products which are packed at the place of production in cartons, cans, boxes or similar permanent containers, and which are so packed and sealed at such place so as to fully insure their freshness and wholesomeness and protect them from contamination, adulteration and deterioration in the course of trade, and which remain in the original unbroken package as packed, except in so far as may be necessary to prevent waste in the food supply;

and provided, further that "permanent containers" shall not be construed to include the paper or parchment wrappers used in wrapping loaves of bread.

SECTION 15. The secretary of agriculture may, by rule establish such exemptions as may be necessary to facilitate the sale of any accumulated or unsold stocks of wholesome bakery products, and in other cases not inconsistent with the purposes of this act.

SECTION 22. A violation of any provision of this act or any rule or regulation adopted herein, shall, for the first offense, be fined not less than $25.00 nor more than $100.00, and for each subsequent offense not less than $100.00 nor more than $300.00.

APPENDIX III.

Regulations Issued by the Wisconsin Commissioner in Connection with the Law Prohibiting Bread Returns

Conduct and Practices Declared Inconsistent with Provisions of Section 4608k-1 and Exemptions Ordered under Authority of said Section.

To Whom It May Concern:

By virtue of the authority conferred upon me as Dairy and Food Commissioner by subsection 3 of section 4608k-1 of the Wisconsin statutes, the following practices are hereby declared inconsistent with the provisions of subsection 1 of section 4608k-1, and the exemptions or tolerances herein specified are hereby established for the purposes specified in section 4608k-1:

1. The delivery or storing of bread or rolls in containers or under conditions which do not fully protect them against contamination by dust, vermin, insects, animals at large or other means.

2. The handling or permitting the handling of bread or rolls by persons except those in charge thereof, or the persons who have bought the same. (Note: Unnecessary handling should be avoided at all times.)

3. The placing of more bread or rolls than the reasonable needs of the dealer until his next opportunity to obtain additional supply, judged by past experience, in any store or in boxes or other containers upon the premises of such dealer.

4. The offering, selling, ordering or accepting of additional bread or rolls when a dealer has a sufficient quantity on hand to reasonably supply his demands until time of next delivery in the course of ordinary business in the light of past experience.

5. Returning, or accepting return of any bread or rolls that have been in the store or upon the premises or in the custody of any dealer and offering or selling the same to other persons, except as provided for under regulation 6.

6. Bread or rolls having marked defects as to preparation or quality, that would cause persons desiring to purchase such article of average quality to reject such defective articles, may be returned to the seller thereof and by him replaced with goods of standard quality and workmanship. A record must be kept of such returns by bakers and dealers and preserved for at least one year. Such records shall plainly state the date, the quantity returned, and, in the case of the dealers to whom returned, and in the case of the bakers by whom returned, and these records shall be open and accessible to the Dairy and Food Commissioner and his agents at all reasonable times.

7. Whenever it shall become necessary to sell bread or rolls for purposes other than human food, a true and correct record of each sale shall be kept by the seller. Such records shall plainly state the reasons for such sale, the date and to whom sold, shall be preserved for at least one year and shall at all reasonable times be open and accessible to the Dairy and Food Commissioner and his agents.

8. It shall be deemed to be unlawful to wilfully destroy any bread or rolls as by burning them or in any way to deliberately cause them to become unfit for food. Nothing in this regulation, however, shall be construed as prohibiting so to treat bread or rolls as to preserve and utilize them for food in other preparations or forms.

9. Nothing herein shall be construed as permitting the return to any dealer or baker nor the acceptance by any dealer or baker, of bread and rolls of any kind, that have been in any place or upon any premises upon which there exists any contagious or infectious disease, or which has become contaminated by exposure to disease or filth.

J. Q. EMERY,
Dairy and Food Commissioner.

Madison, Wis.
April 11, 1921.

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